

Figure 1 is a cross-sectional view of a semiconductor device. It shows a substrate 5 with various layers and structures. On the left, there is a vertical stack of layers including 20, 21-1, 21-2, 22, 22-1, 23, 23-1, 24, 25, 26, 27, 28, 29 (30), 31, 32, 33A, and 33B. A circular inset provides a magnified view of the bottom layer 45, which is composed of sub-layers 46, 47, and 48. Dimensions k and m are indicated between different parts of the structure.

FIG. 3

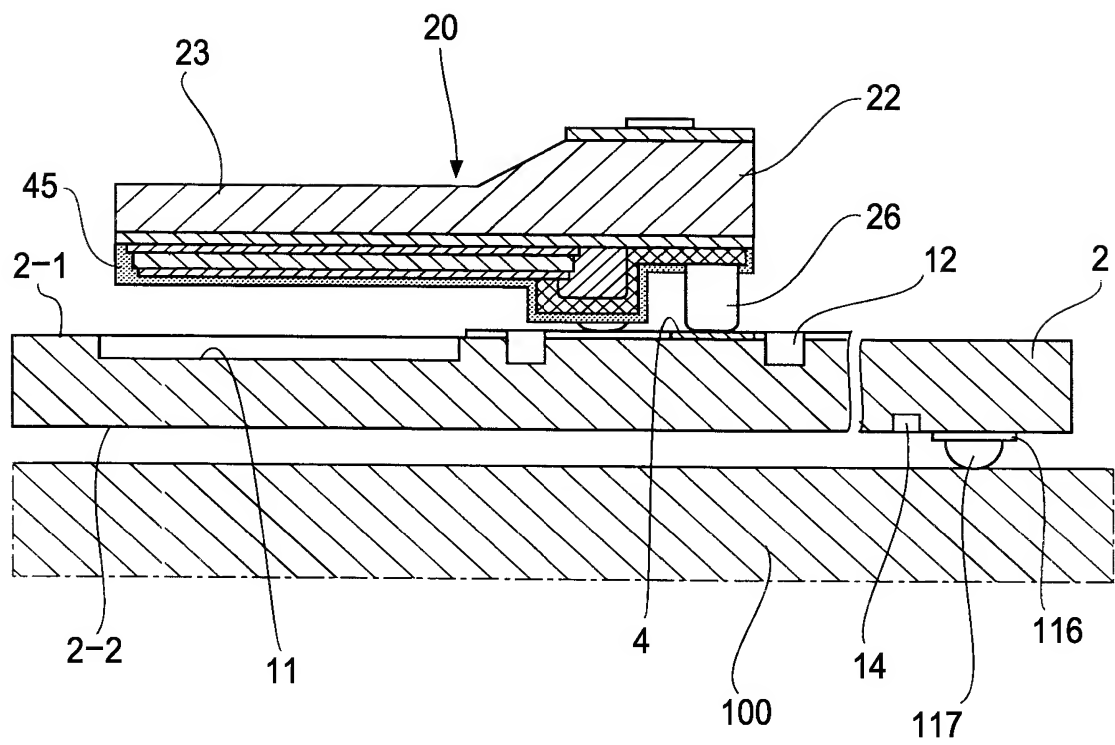


FIG. 4

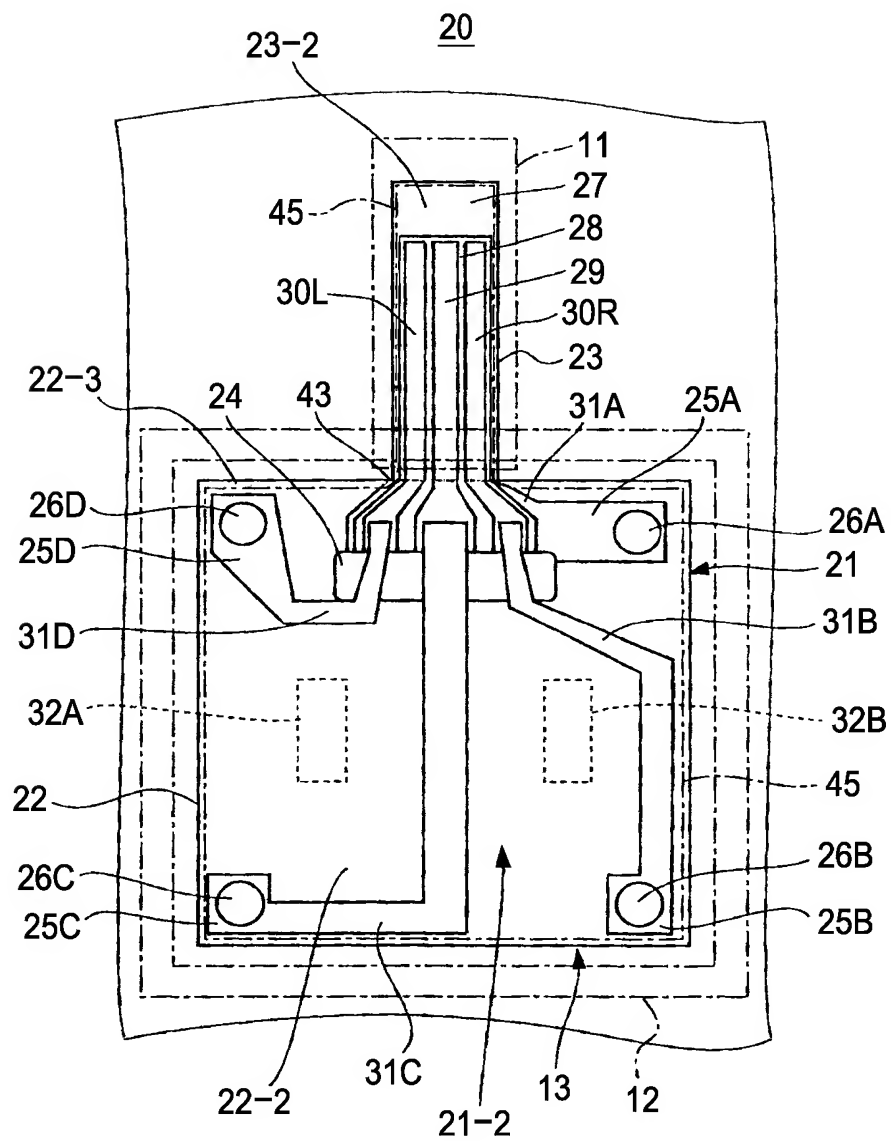


FIG. 5

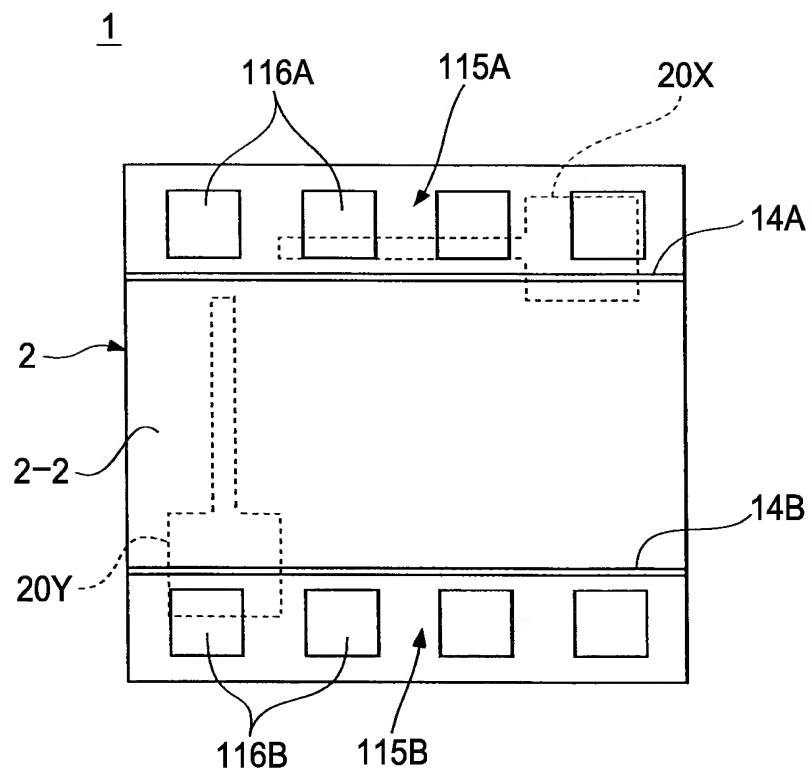


FIG. 6

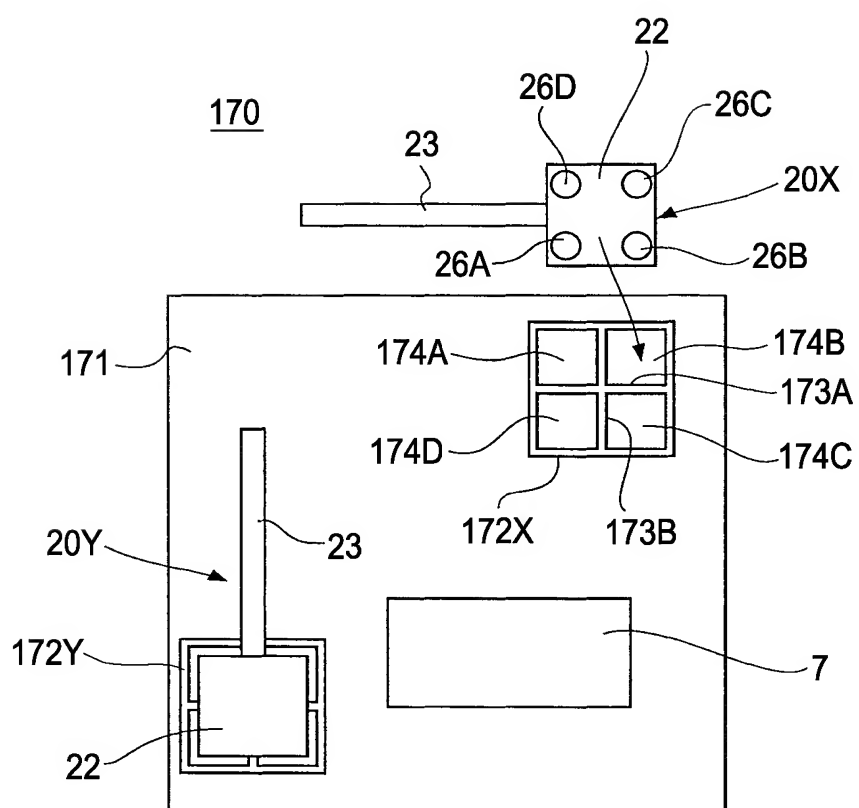


FIG. 7

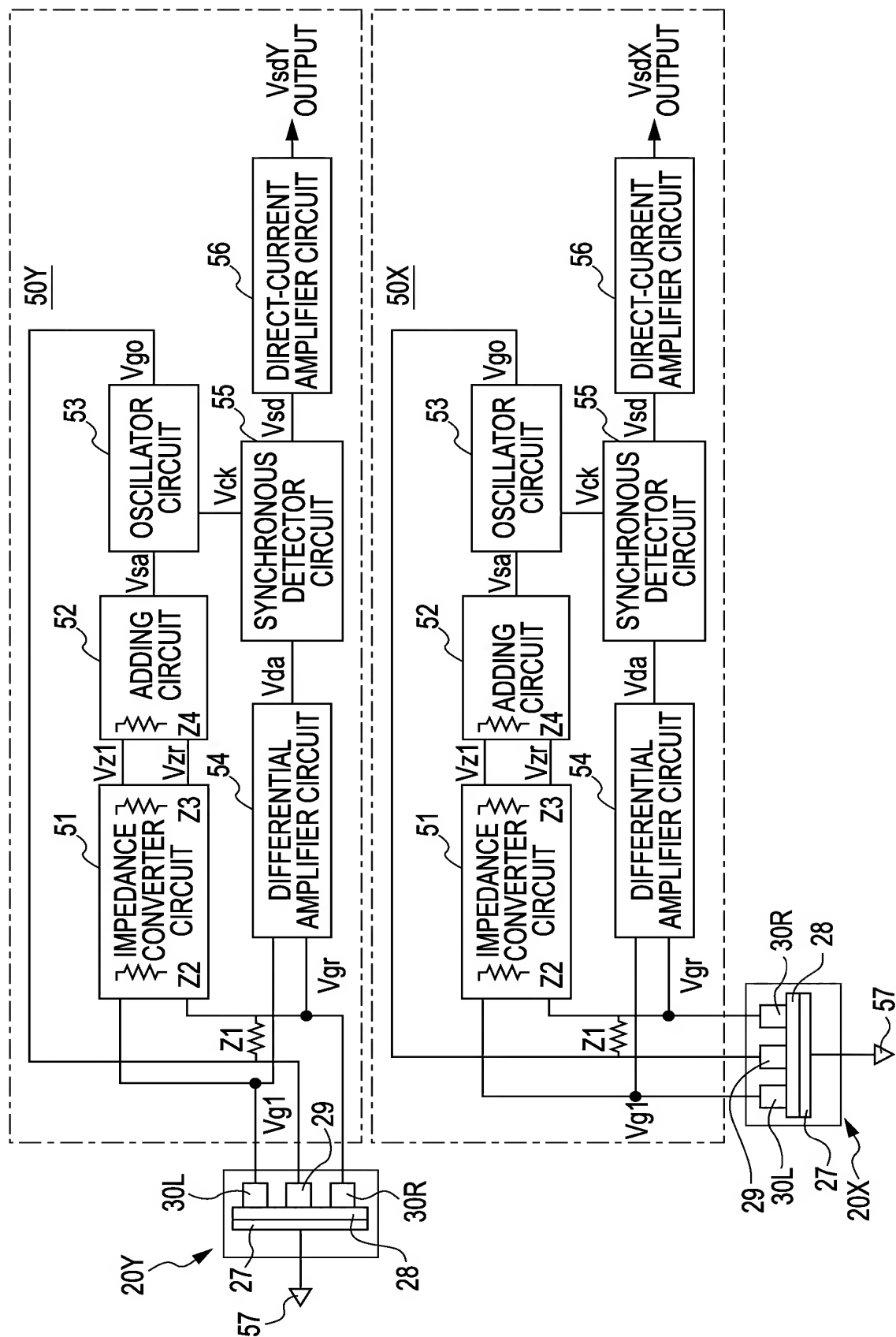


FIG. 8

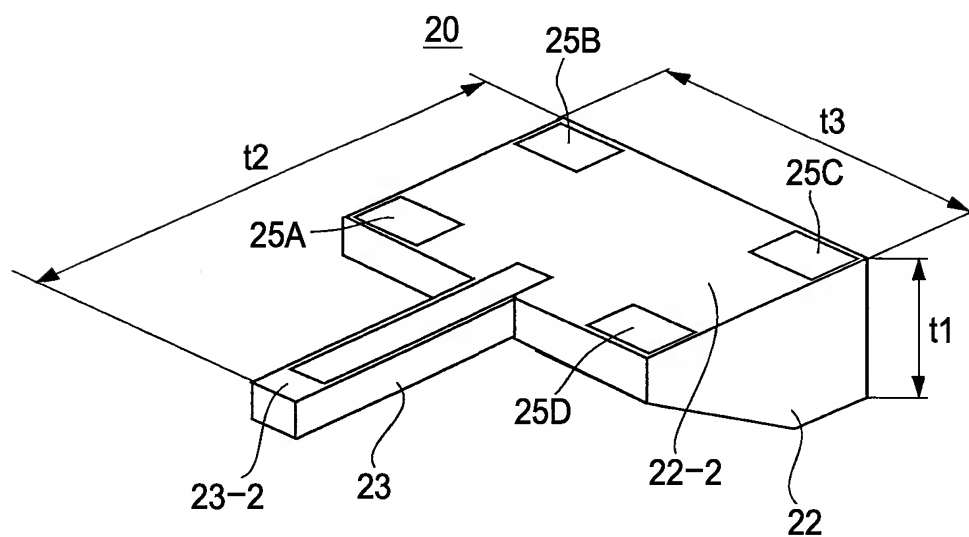
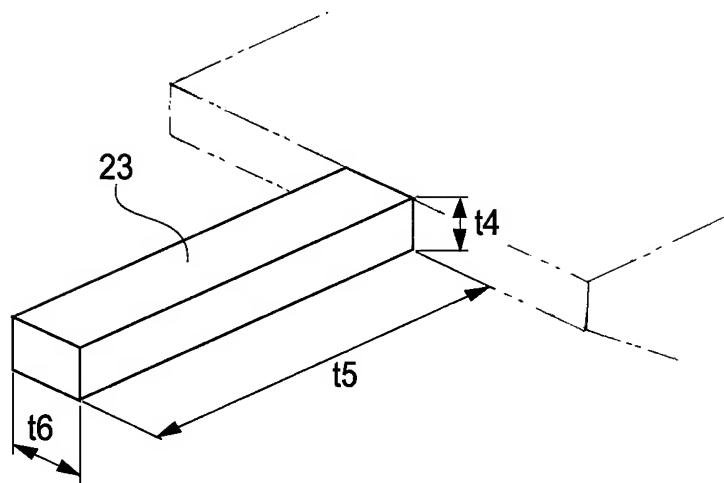
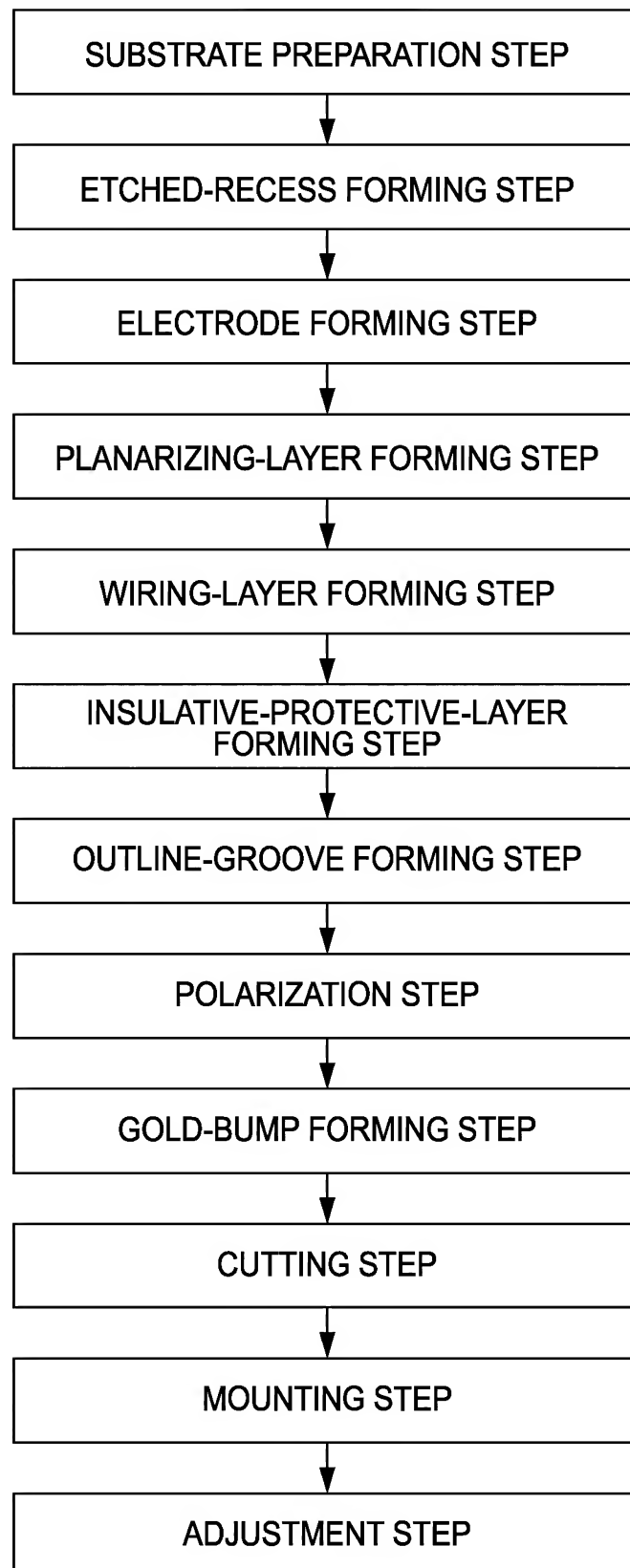


FIG. 9



10/81

FIG. 10



11/81

FIG. 11



FIG. 12

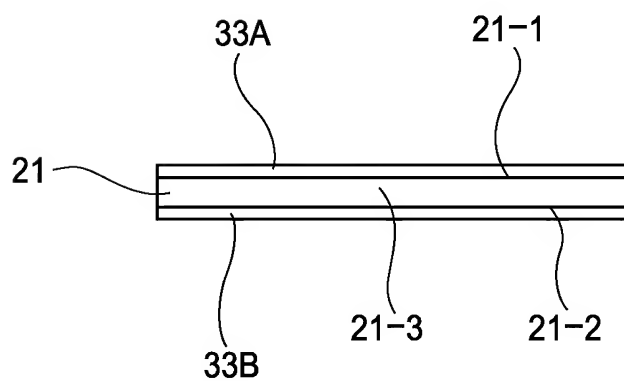


FIG. 13

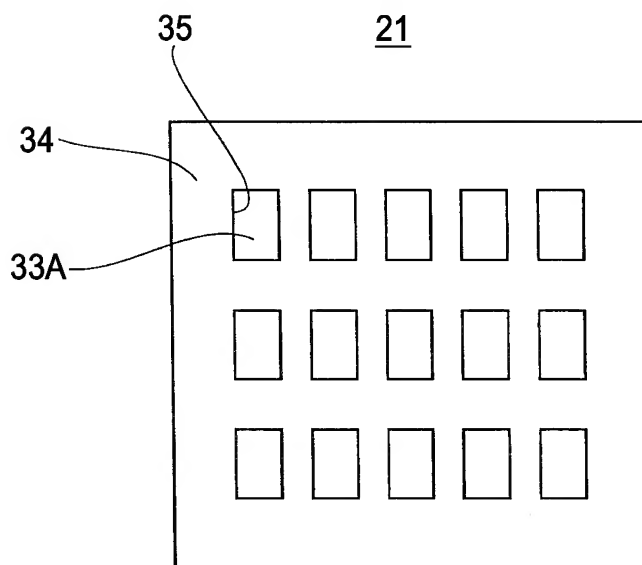


FIG. 14

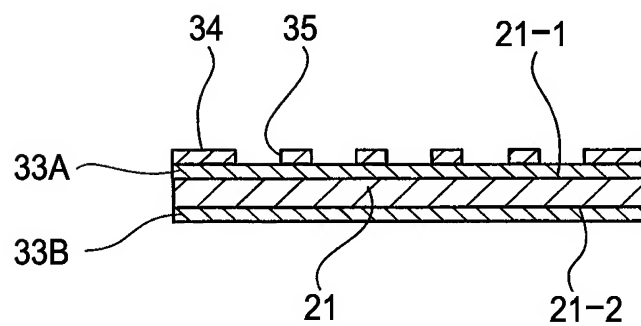


FIG. 15

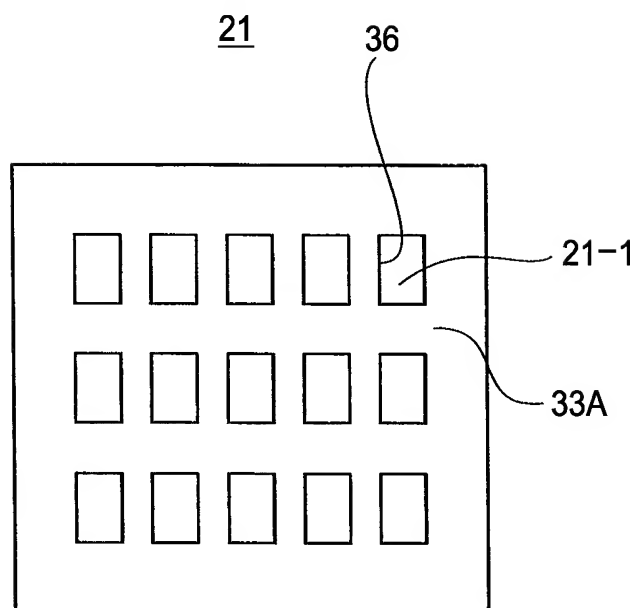
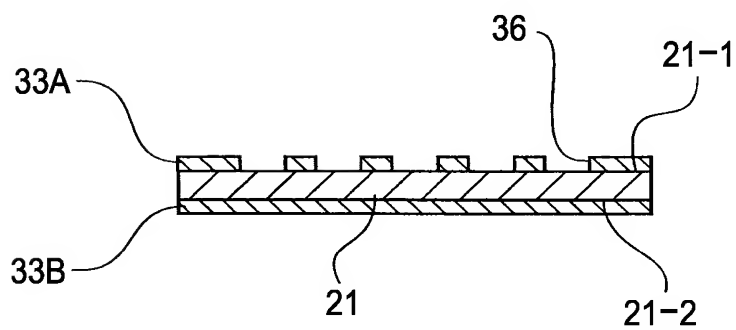


FIG. 16



14/81

FIG. 17

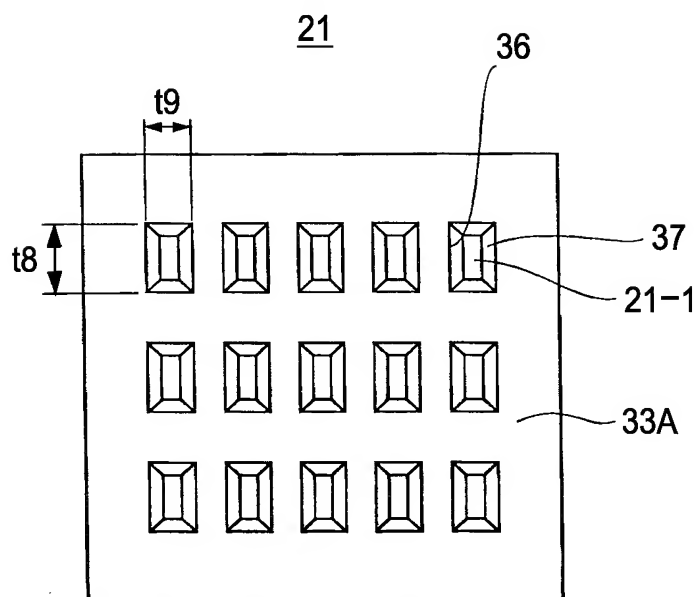


FIG. 18

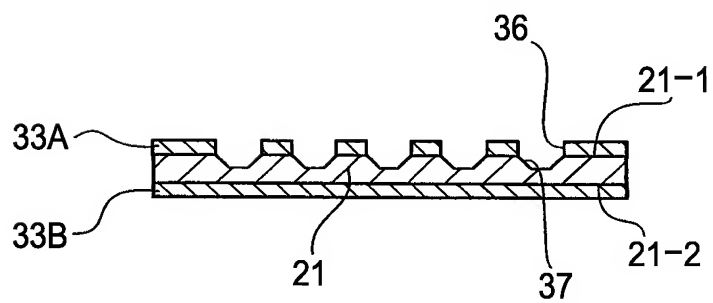


FIG. 19

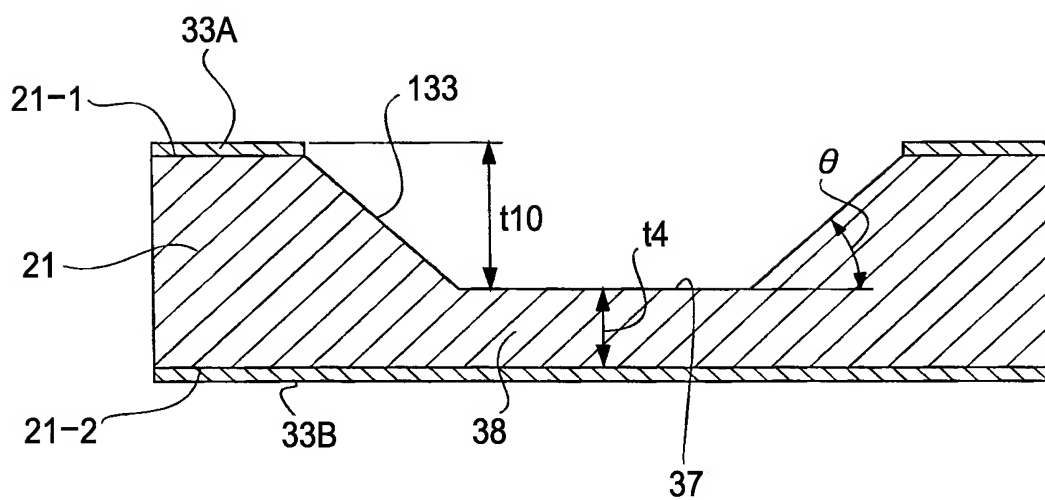


FIG. 20

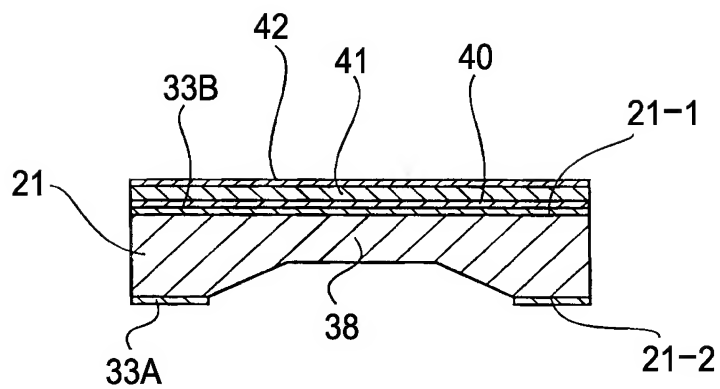


FIG. 21

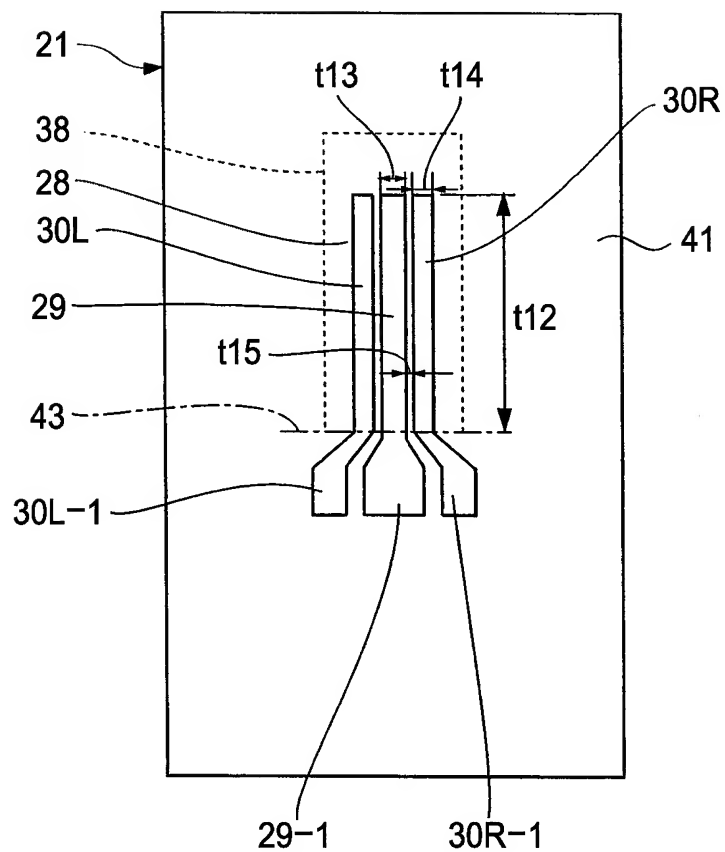
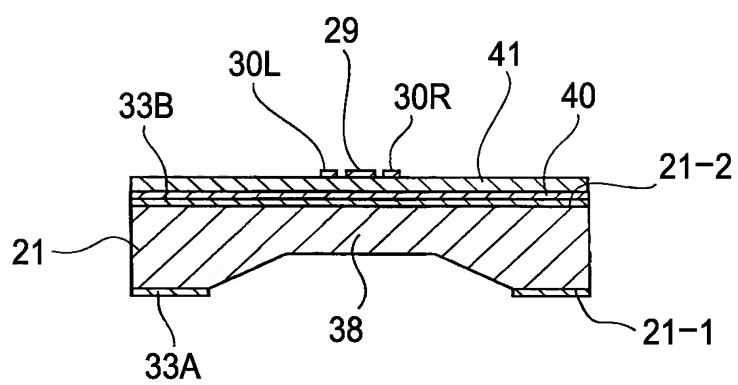


FIG. 22



19/81

FIG. 23

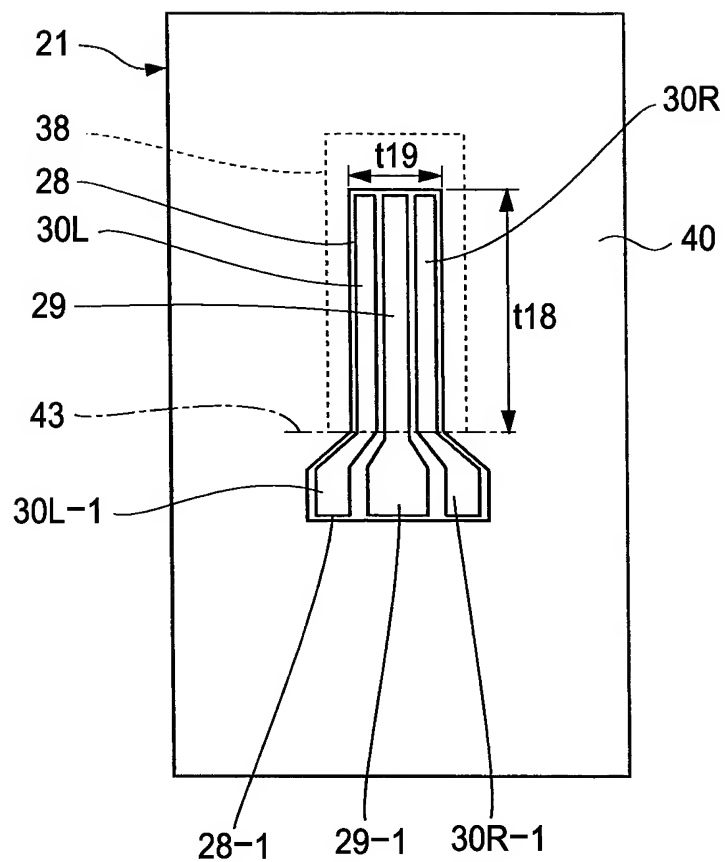
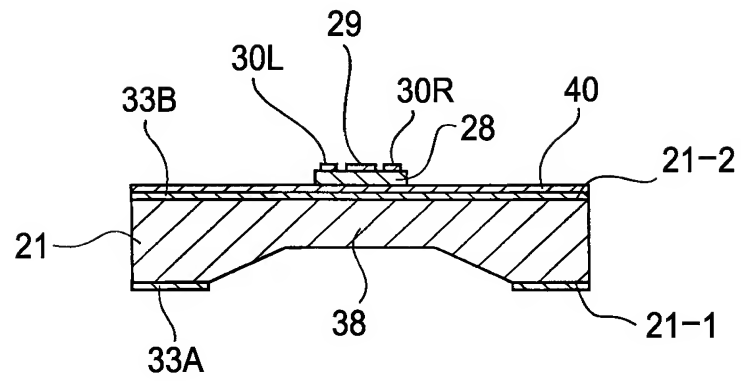


FIG. 24



21/81

FIG. 25

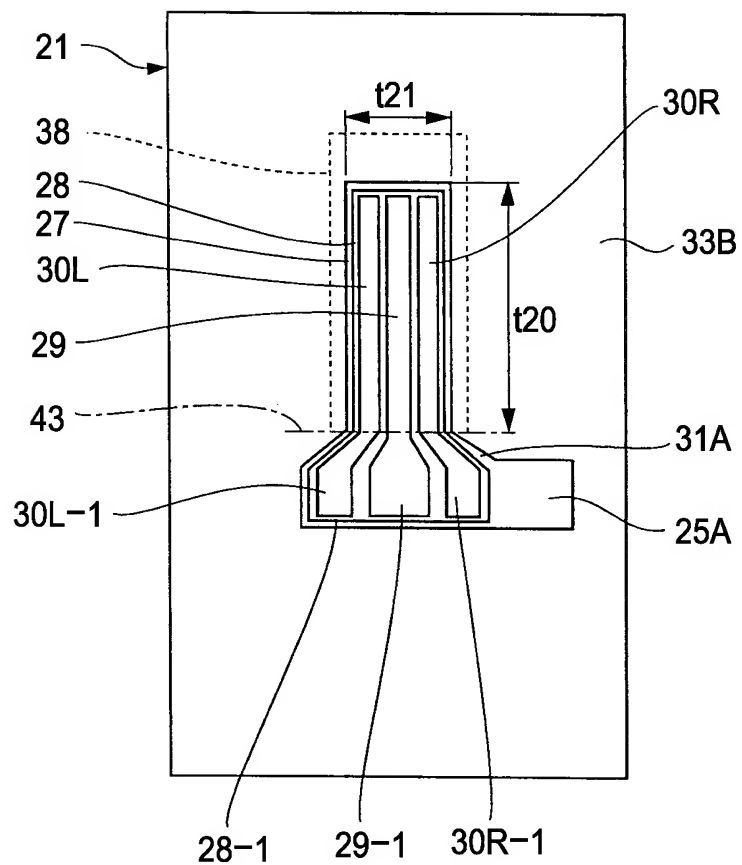


FIG. 26

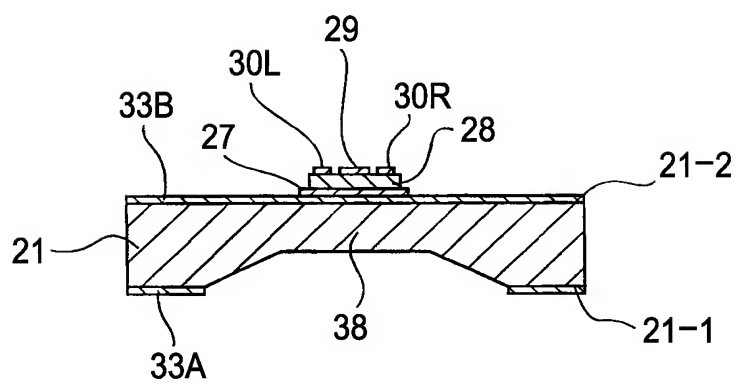


FIG. 27

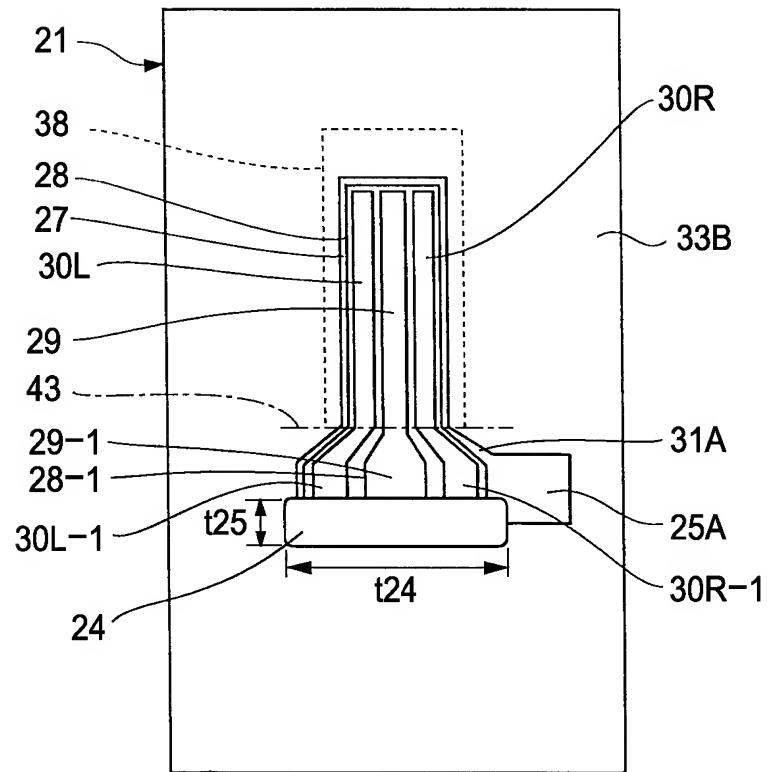


FIG. 28

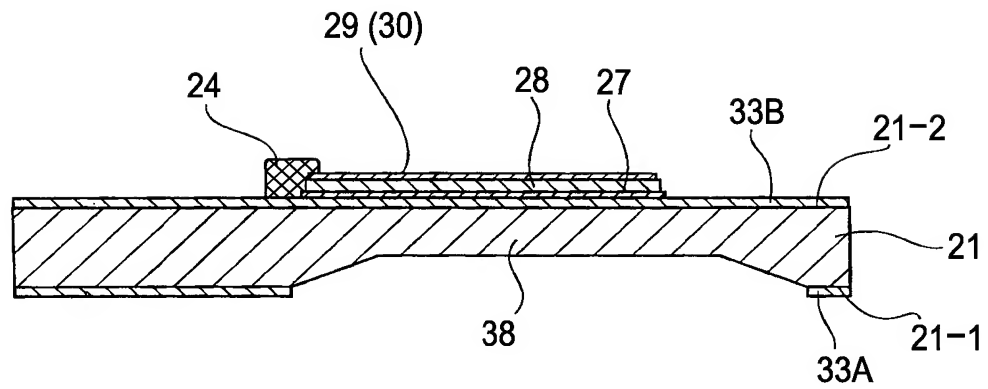


FIG. 29

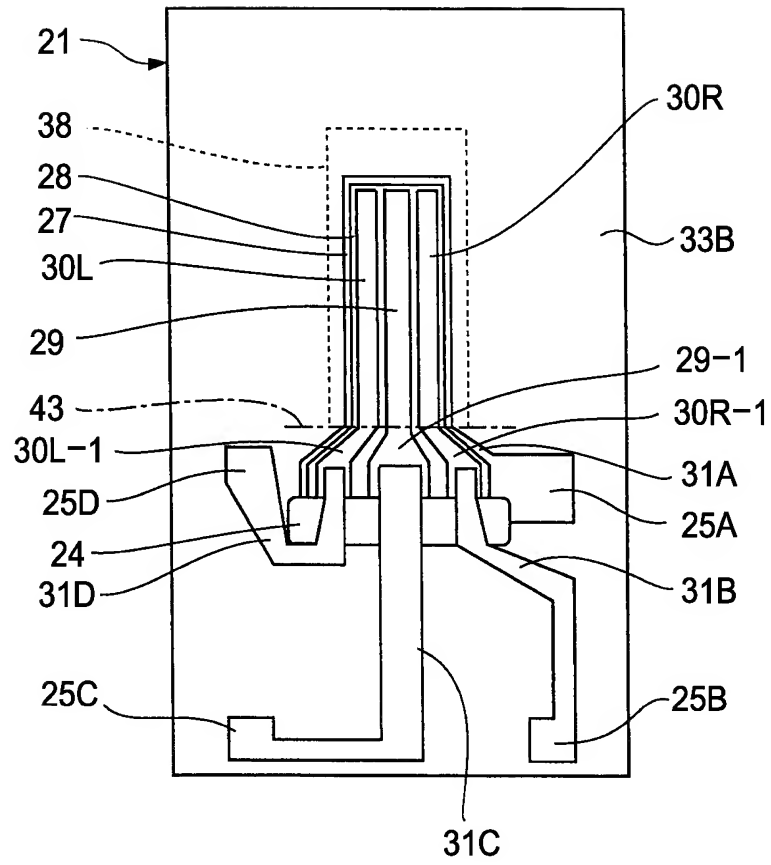


FIG. 30

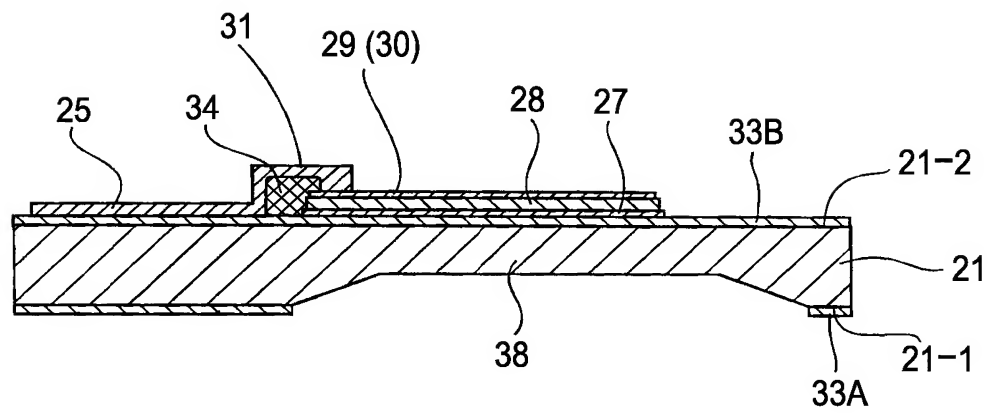


FIG. 31

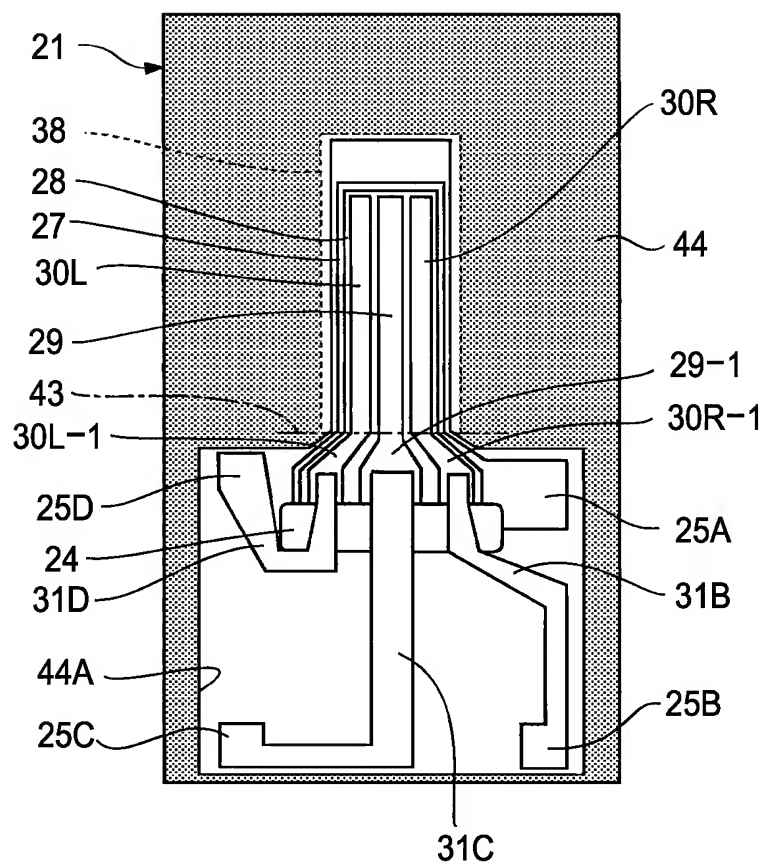


FIG. 32

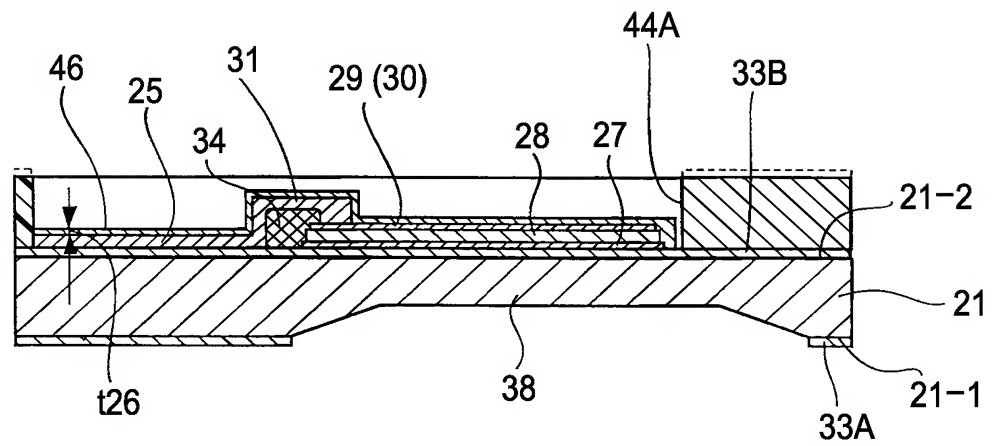


FIG. 33

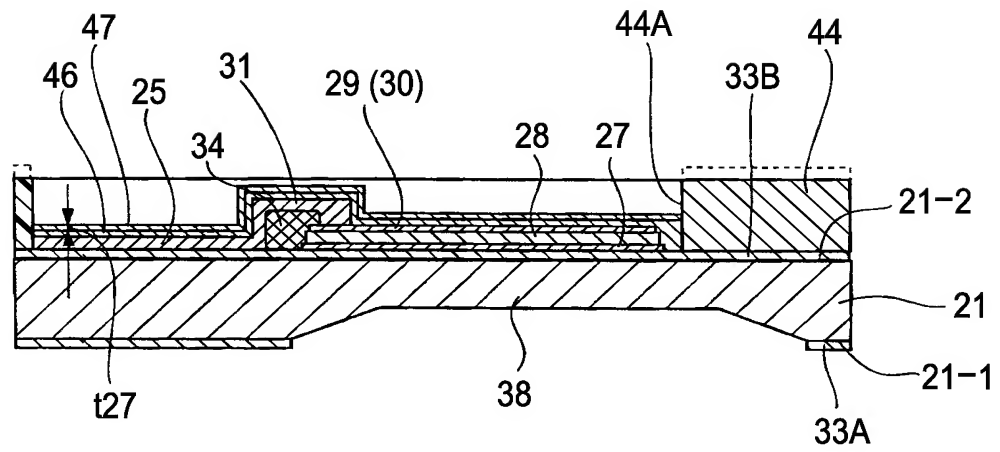


FIG. 34

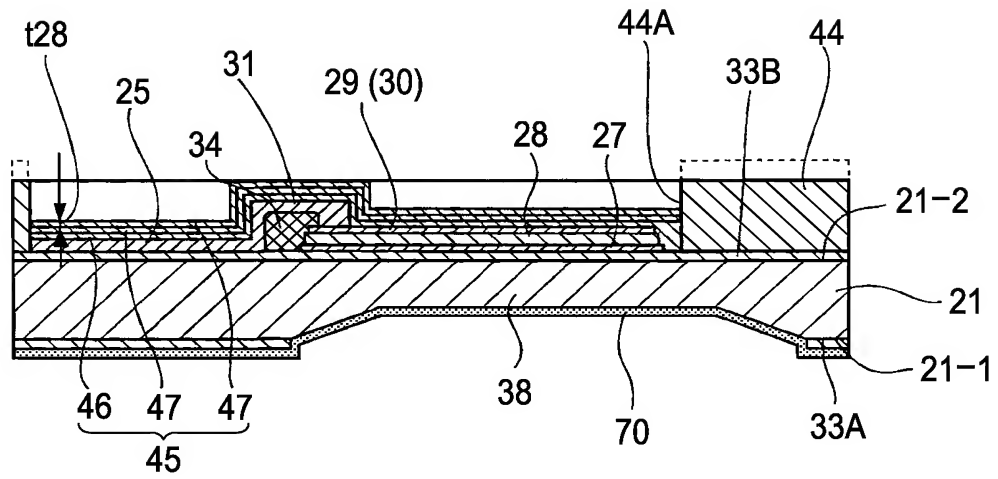


FIG. 35

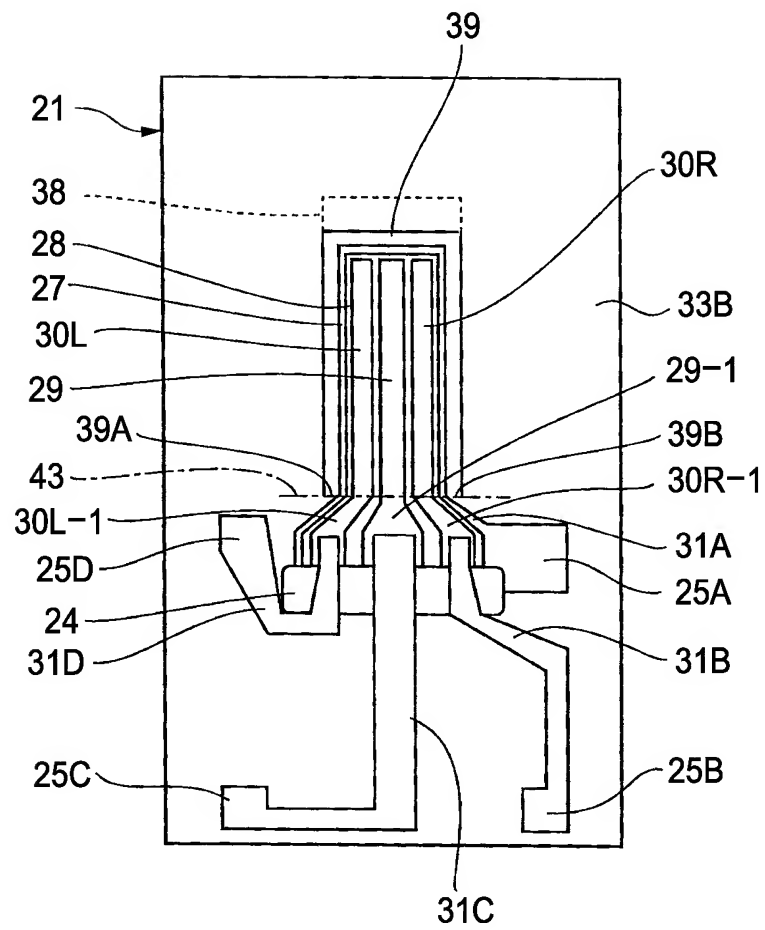
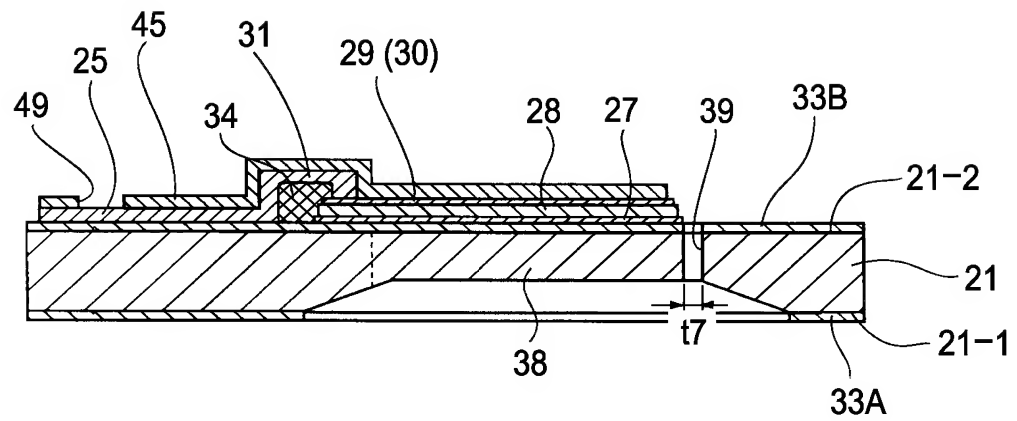


FIG. 36



33/81

FIG. 37

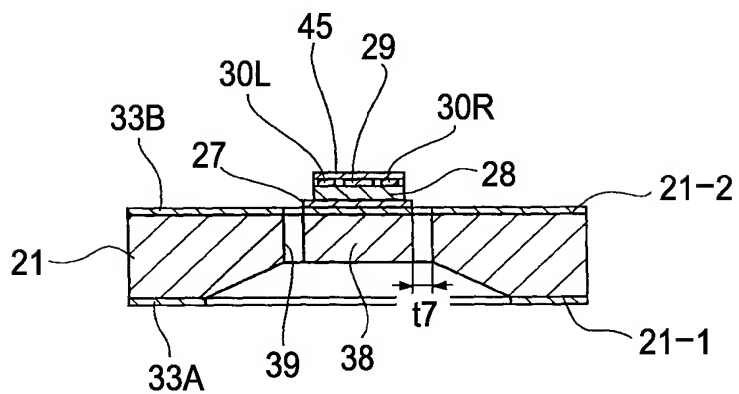
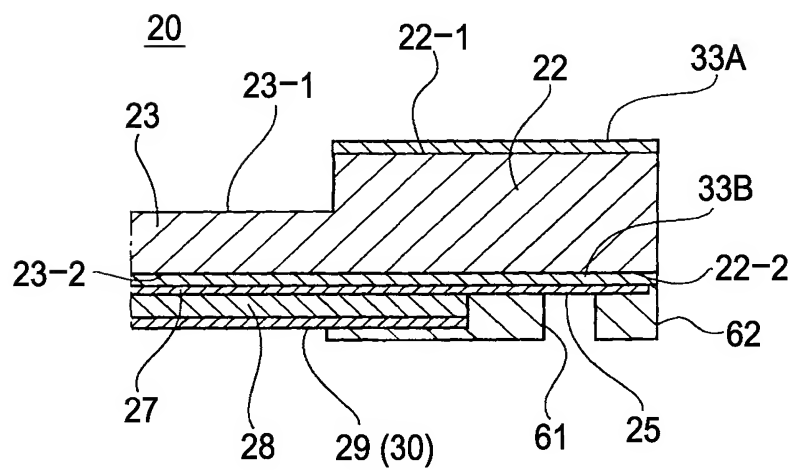


FIG. 38A



34/81

FIG. 38B

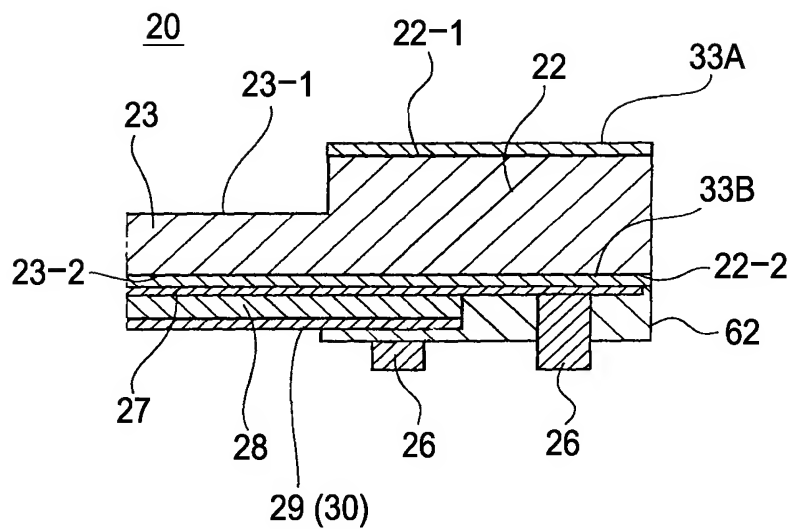
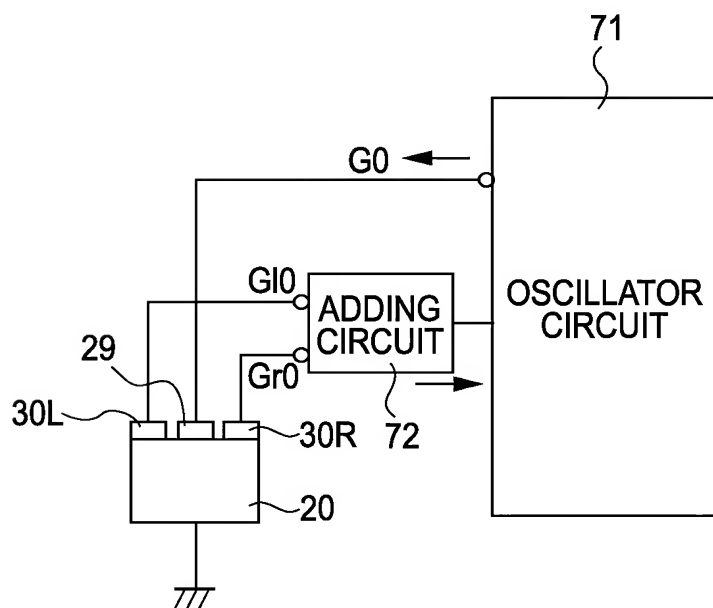


FIG. 39A



35/81

FIG. 39B

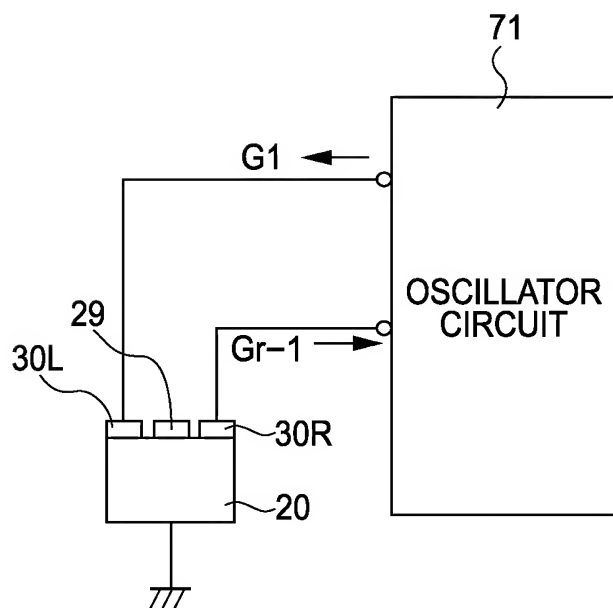


FIG. 39C

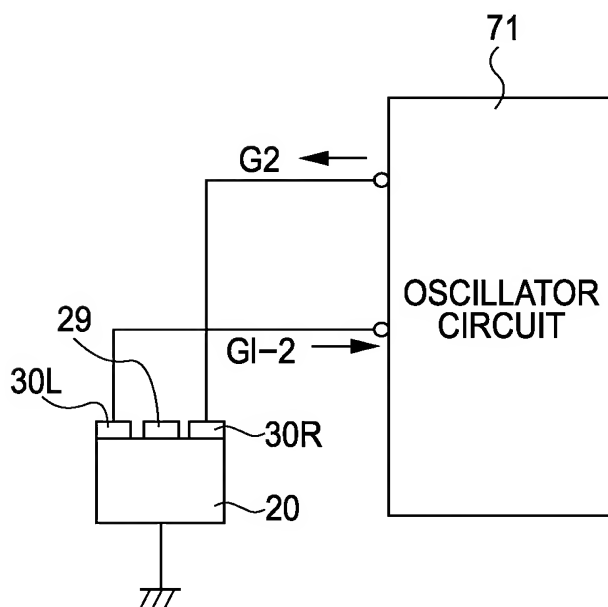


FIG. 40

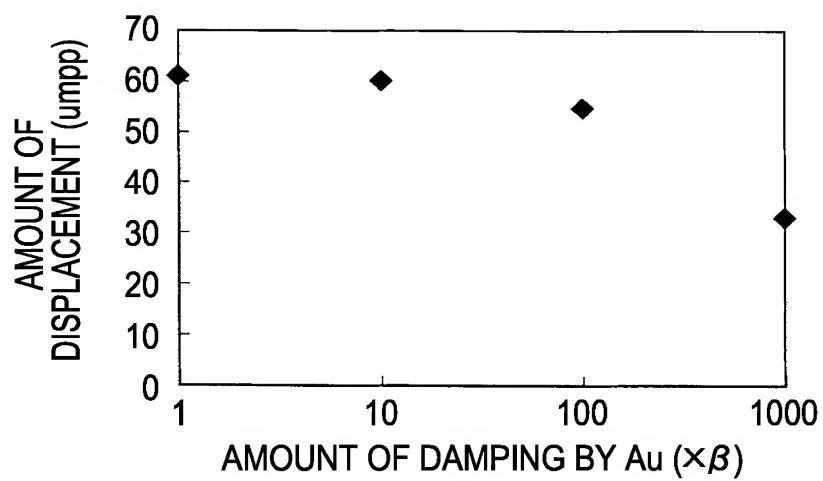


FIG. 41A

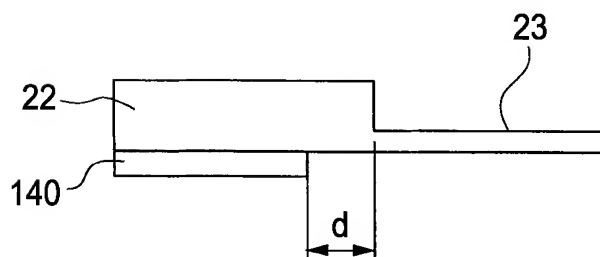


FIG. 41B

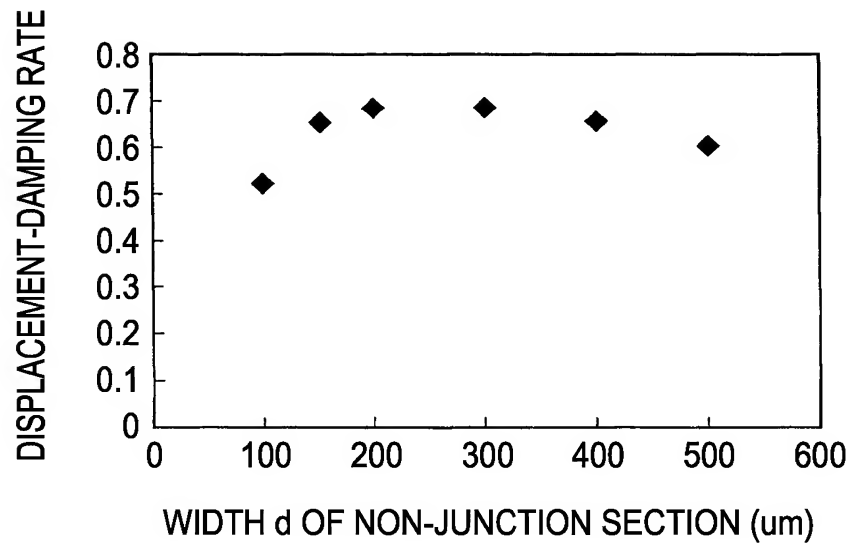


FIG. 42A

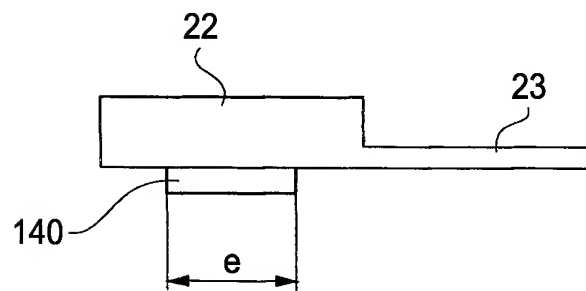


FIG. 42B

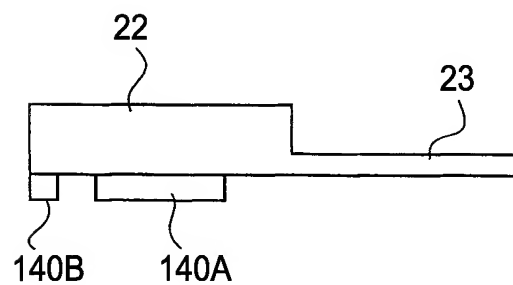


FIG. 42C

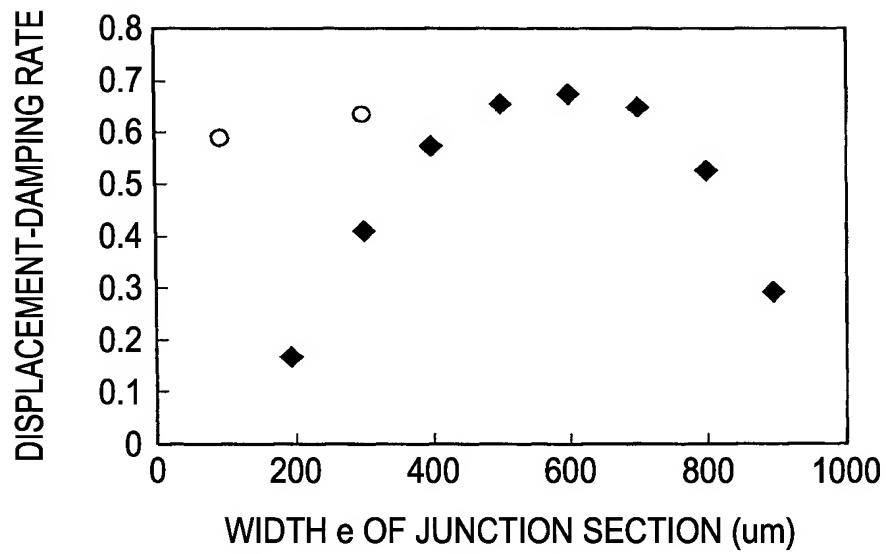


FIG. 43A

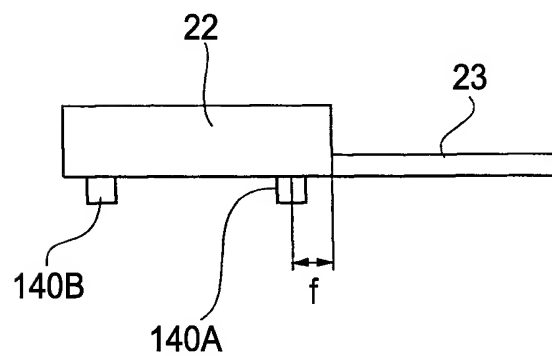


FIG. 43B

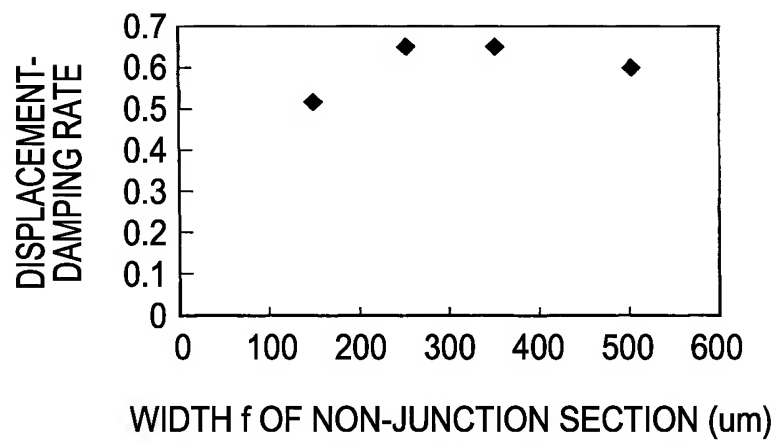


FIG. 44A

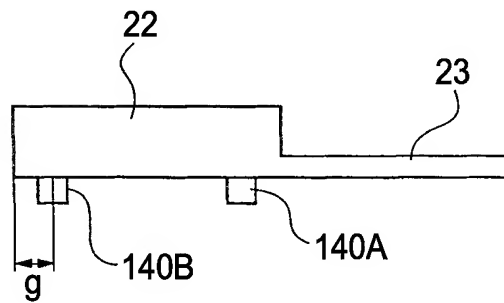


FIG. 44B

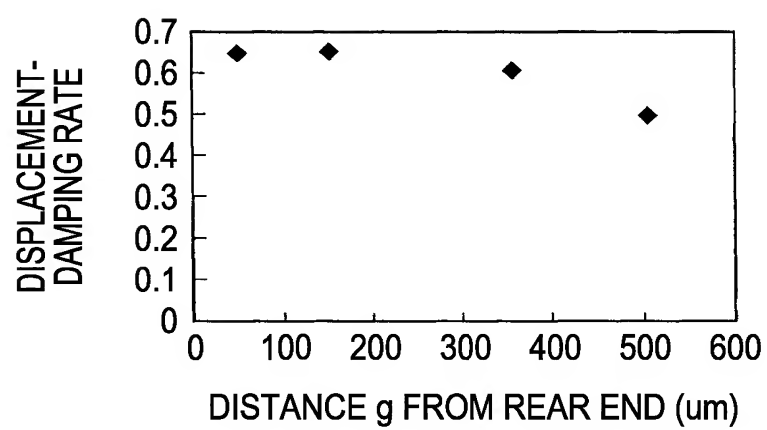
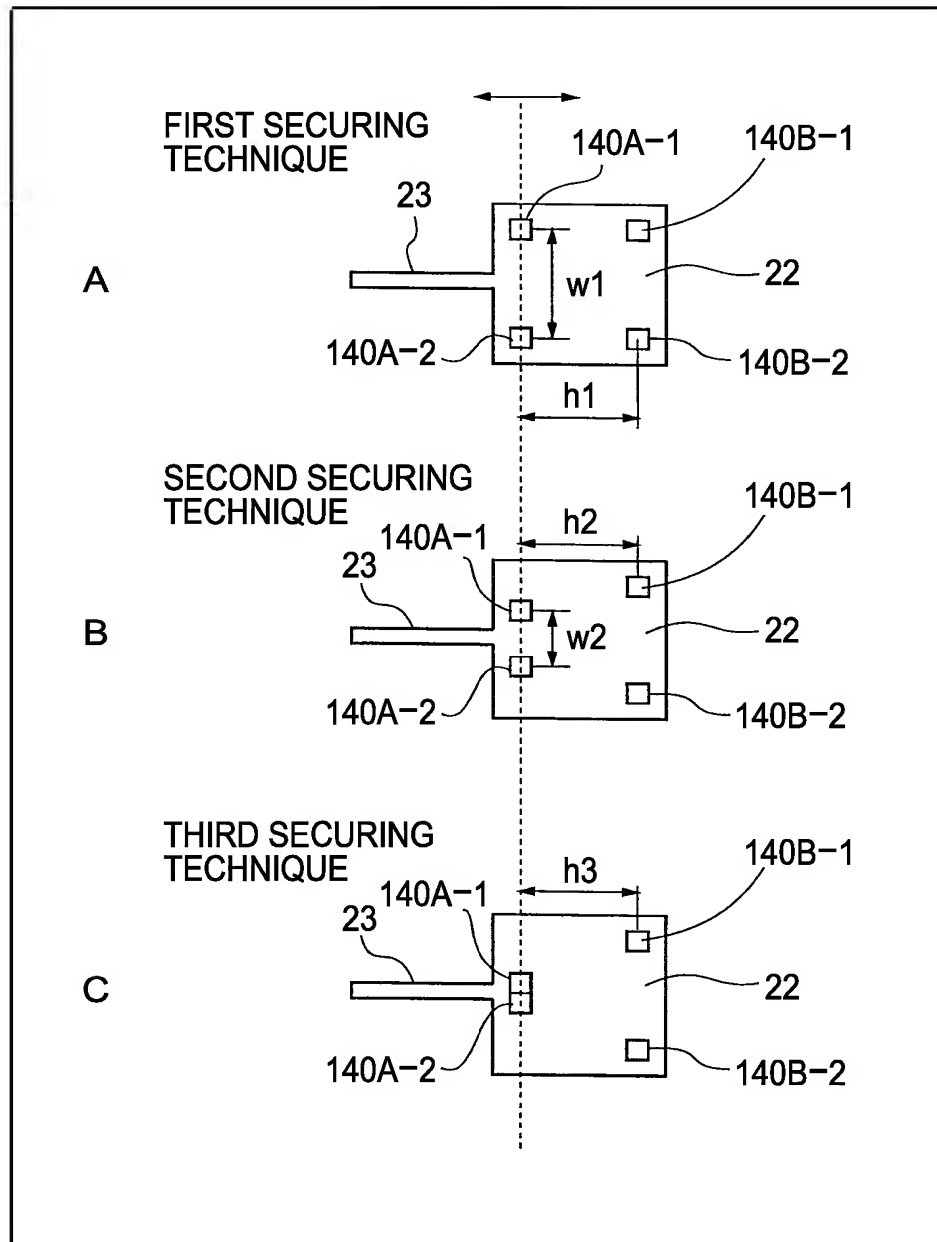


FIG. 45



42/81

FIG. 46

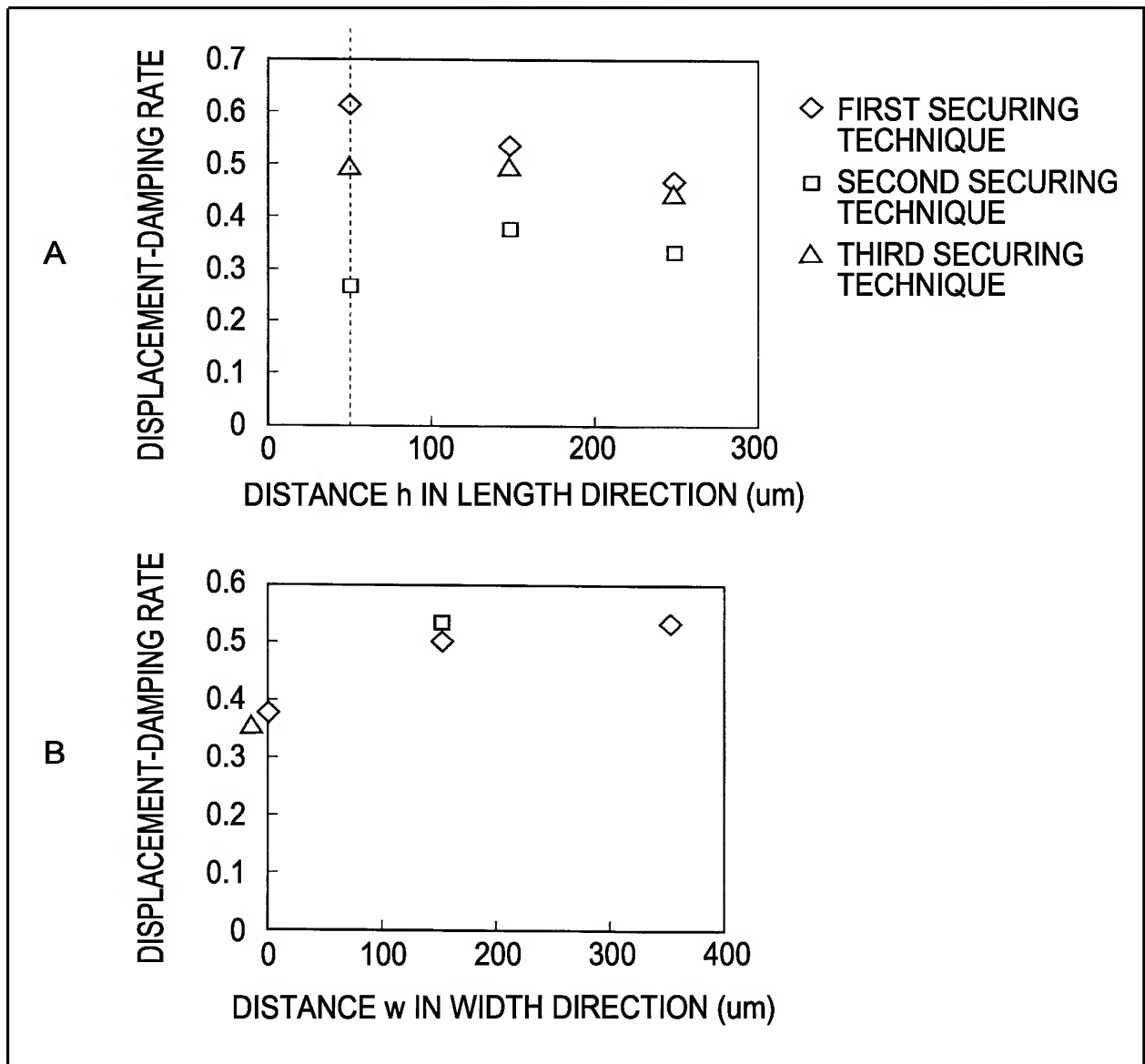


FIG. 47A

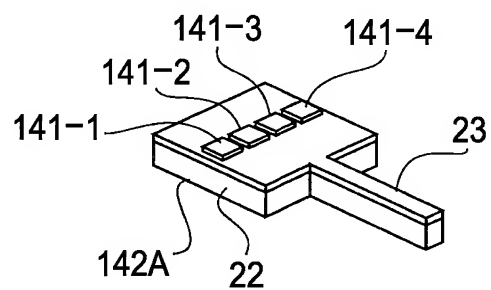


FIG. 47B

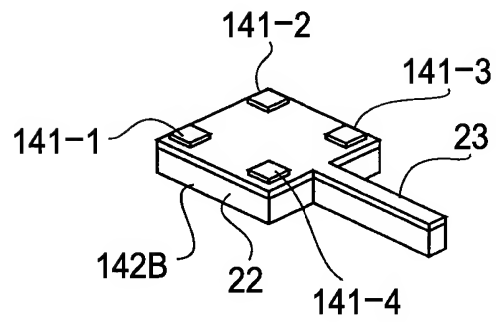


FIG. 47C

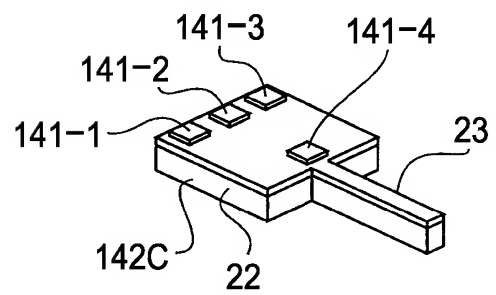


FIG. 48

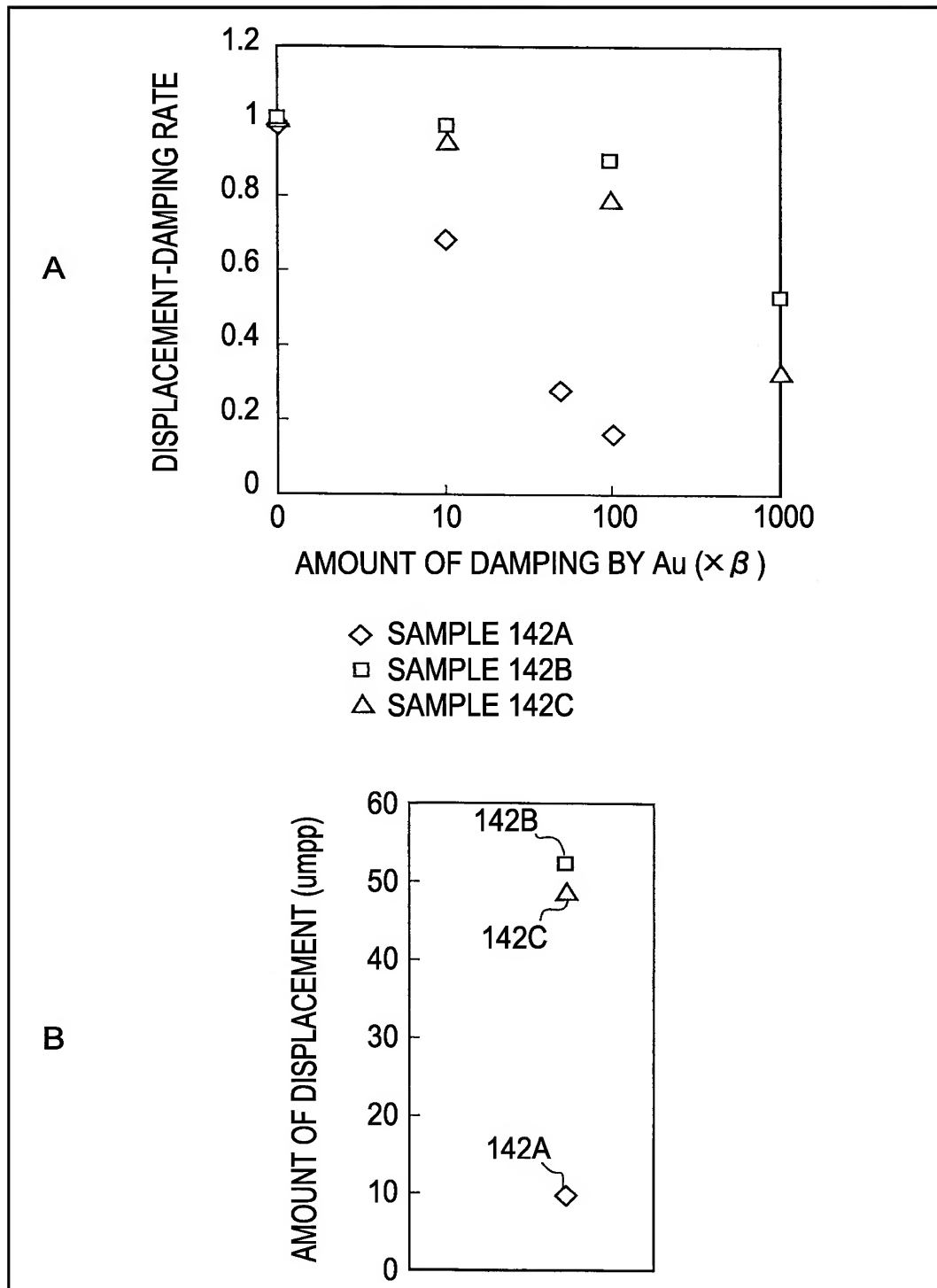


FIG. 49A

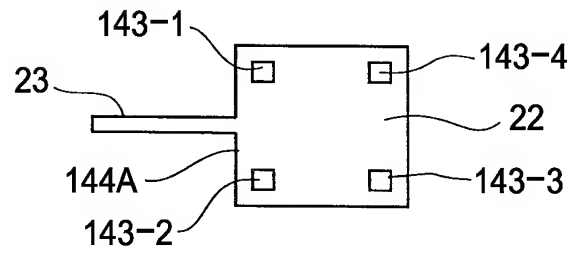


FIG. 49B

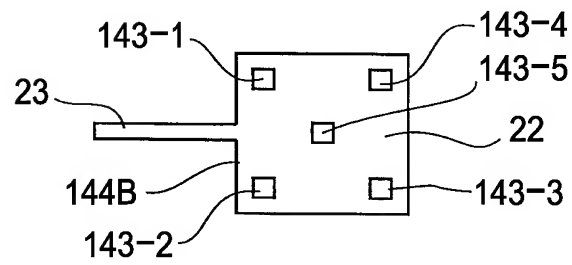


FIG. 49C

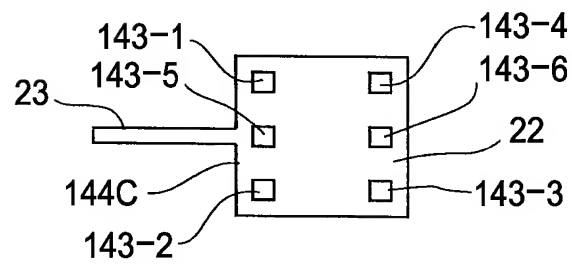


FIG. 49D

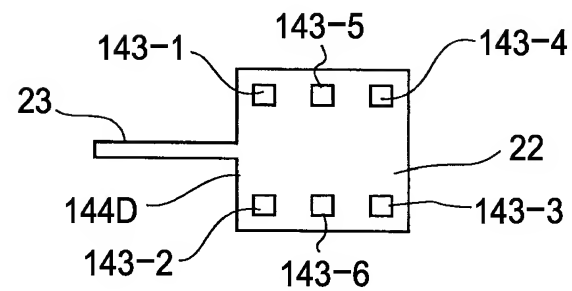


FIG. 50

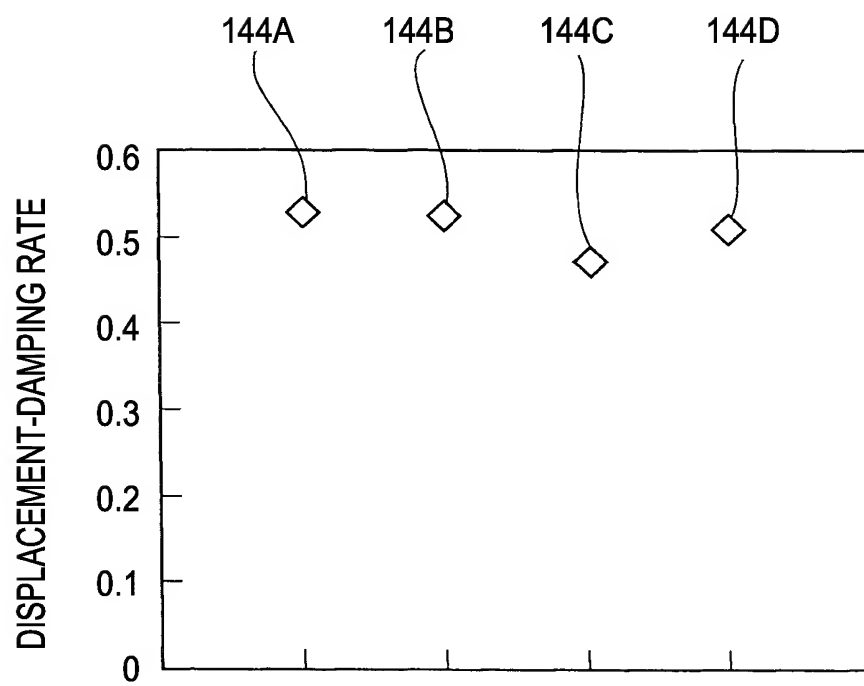


FIG. 51

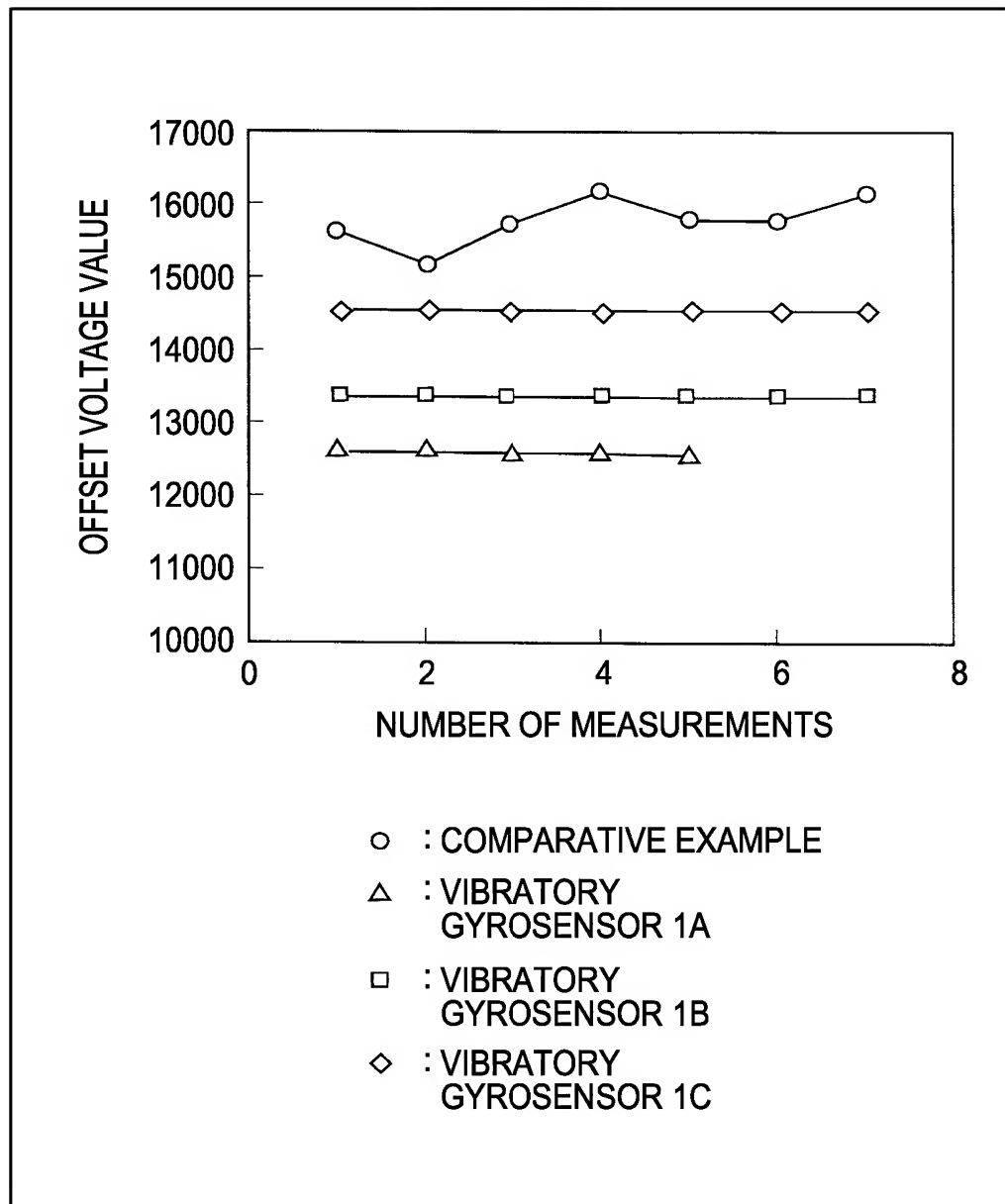


FIG. 52

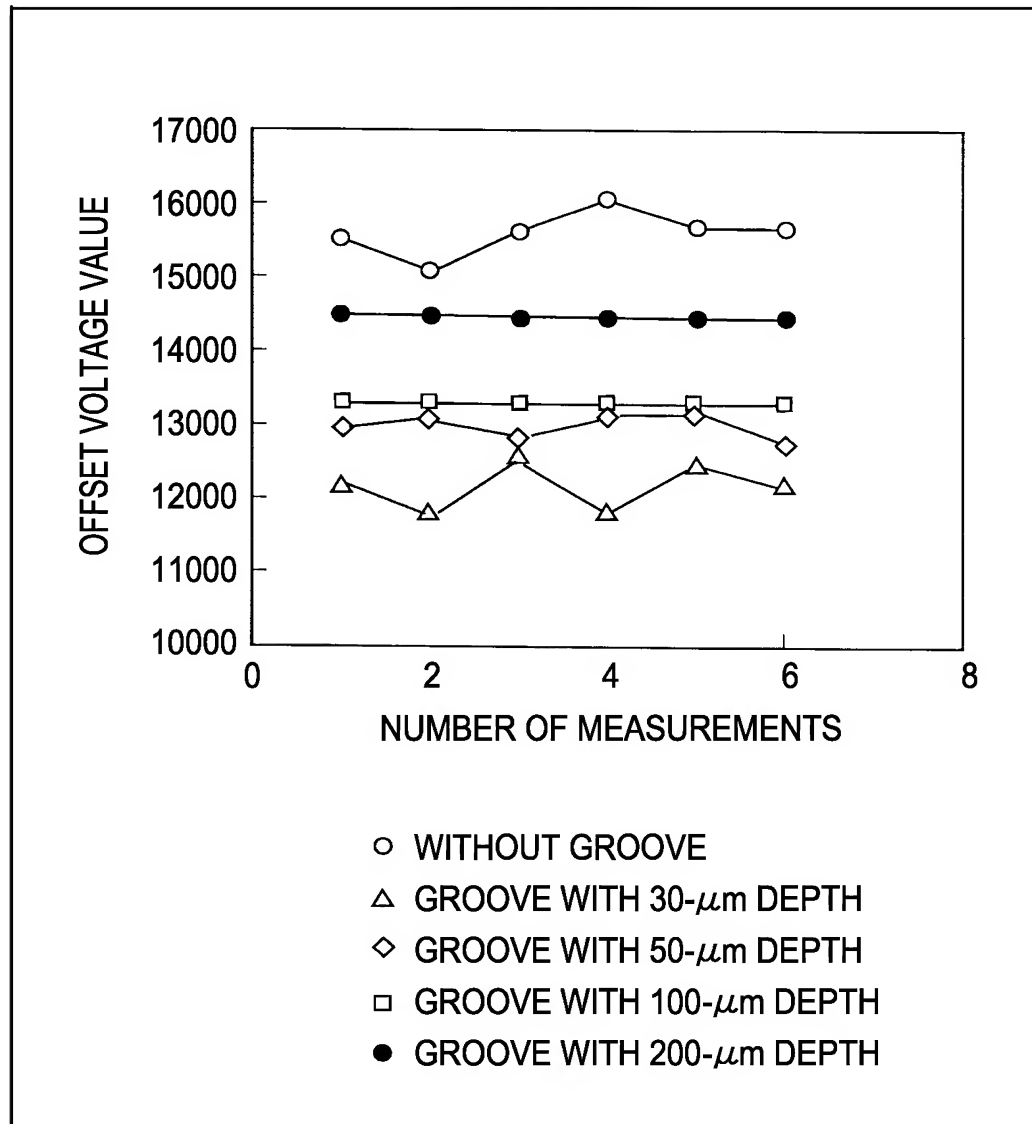
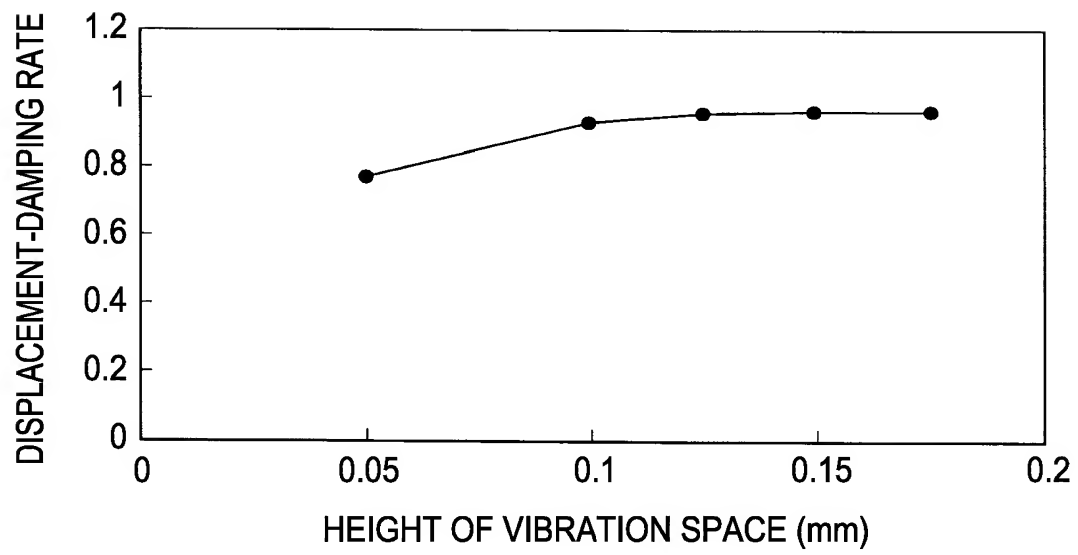


FIG. 53



50/81

FIG. 54

	3cm-SQUARE SUBSTRATE	4in- ϕ SUBSTRATE	5in- ϕ SUBSTRATE
ONE-AXIS VIBRATION ELEMENTS	60 (30)	1200 (600)	4000 (2000)
TWO-AXIS INTEGRATED VIBRATION ELEMENTS	20	300	800

FIG. 55

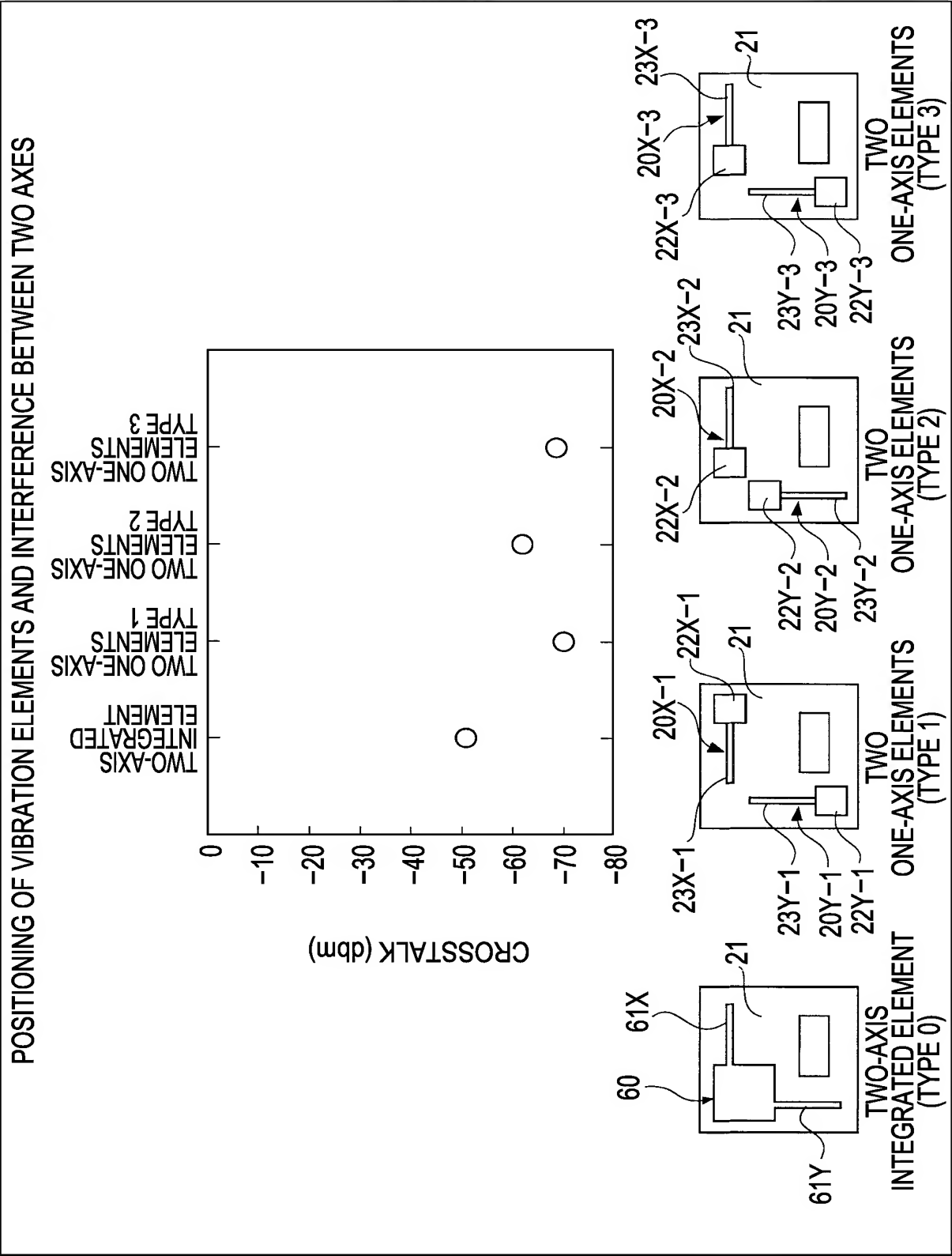


FIG. 56A

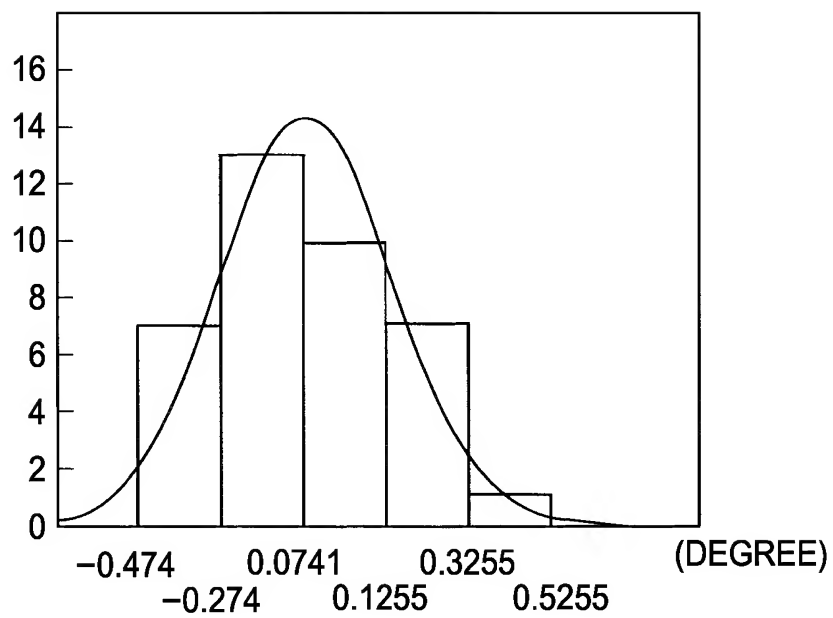


FIG. 56B

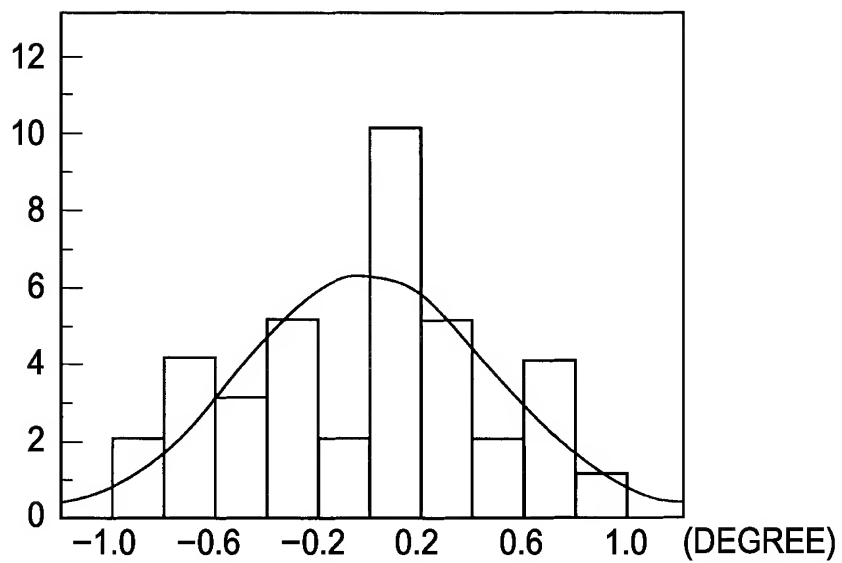


FIG. 57

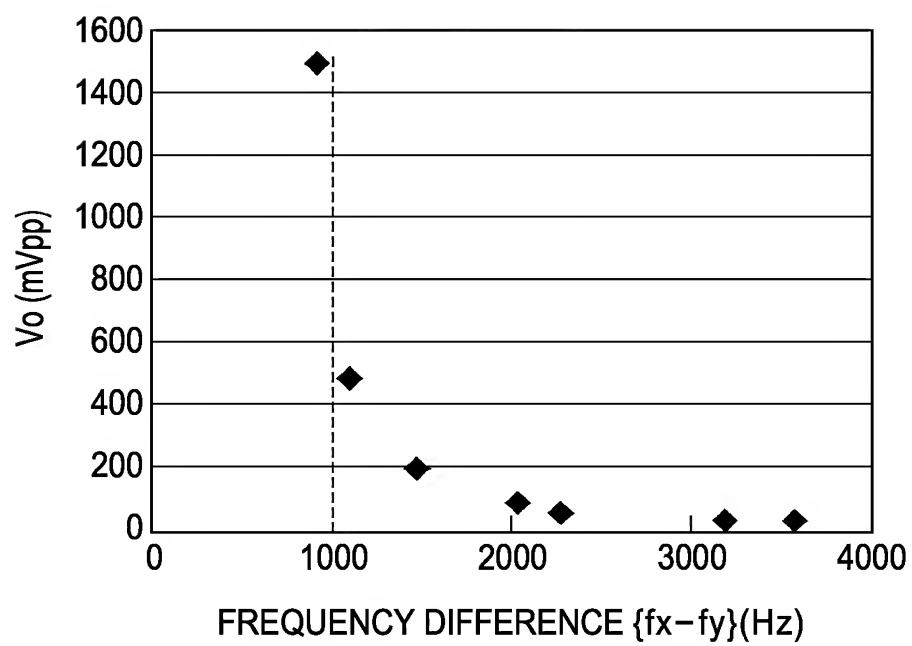


FIG. 58

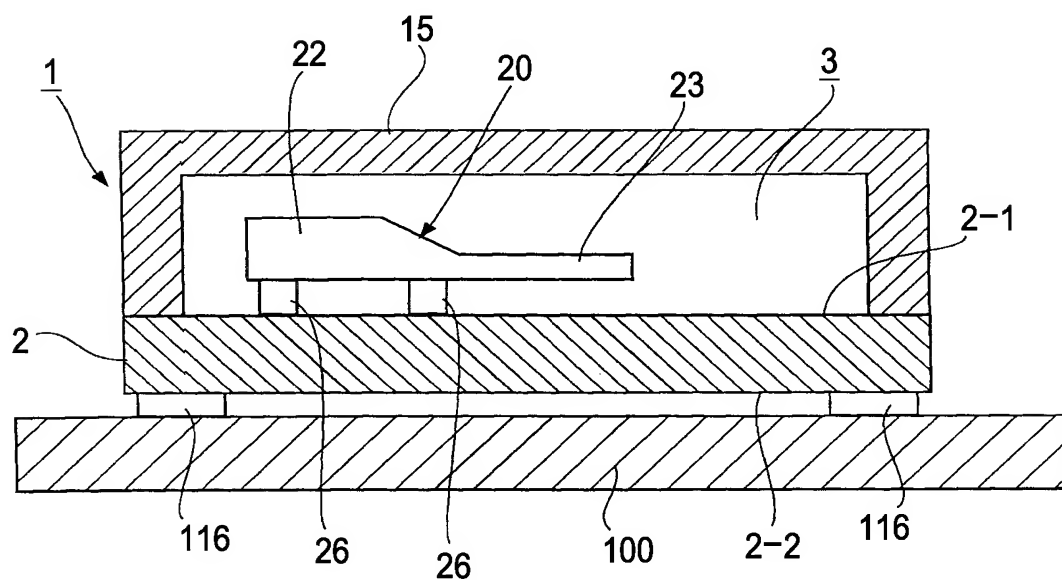


FIG. 59

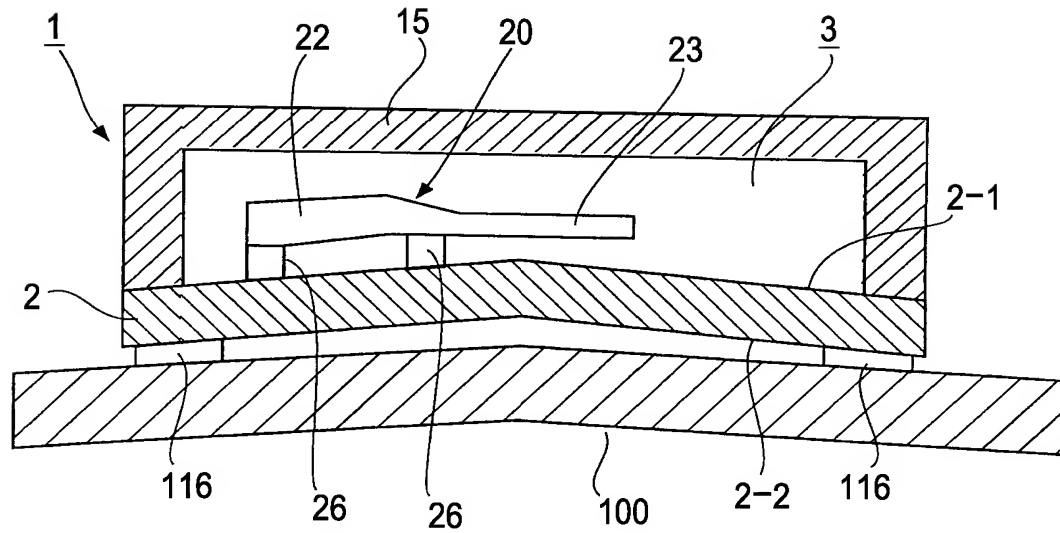


FIG. 60A

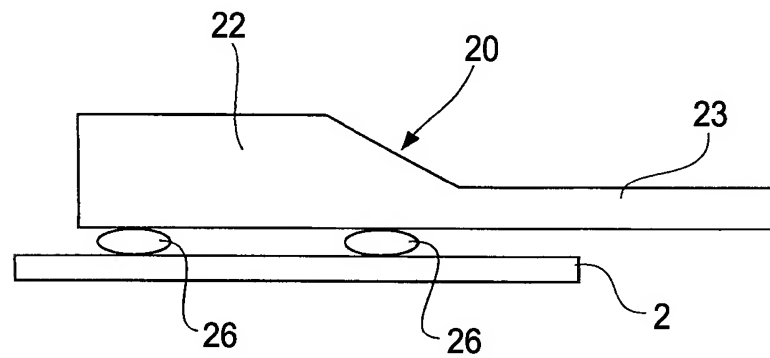


FIG. 60B

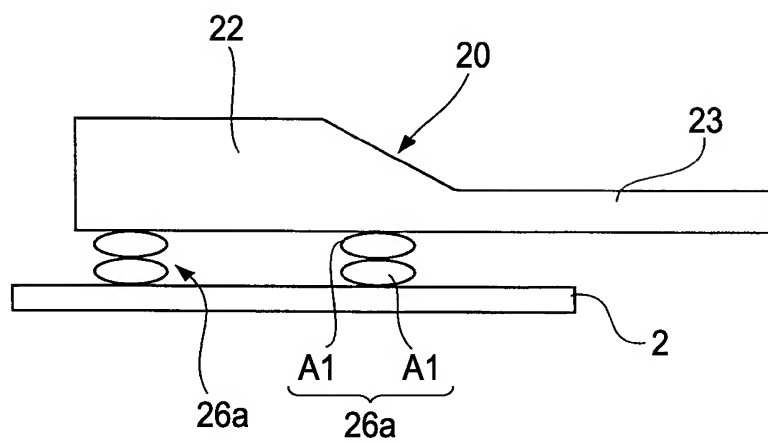


FIG. 61A

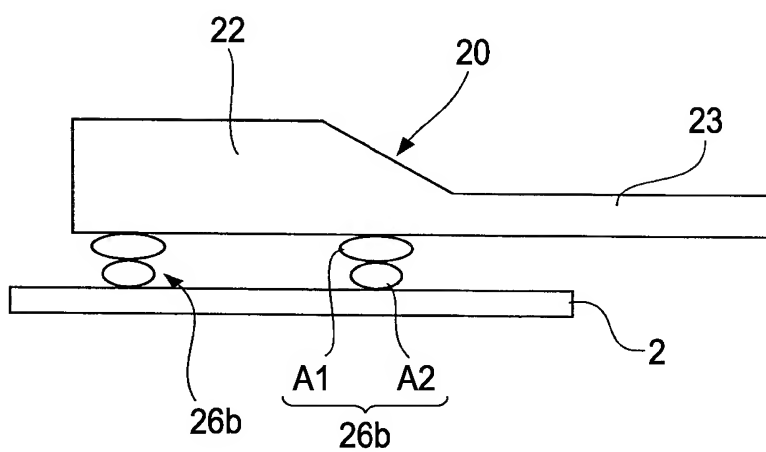


FIG. 61B

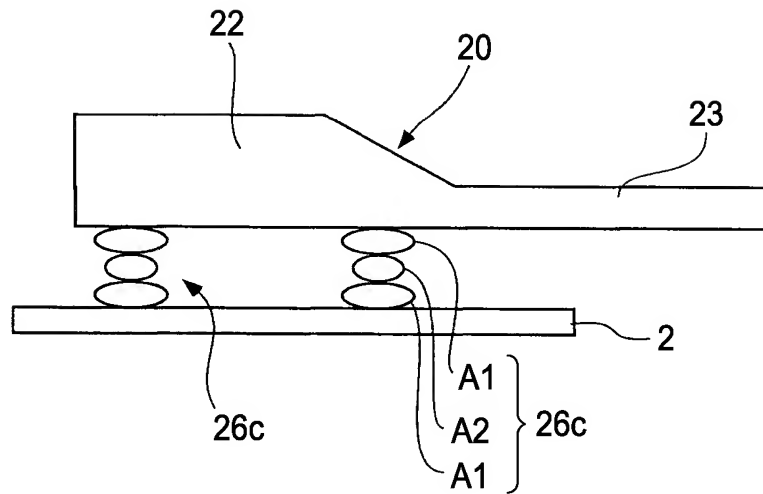


FIG. 62A

	LARGE (A1)	SMALL (A2)
WIDTH OF GOLD WIRE (μm)	38	25
BALL DIAMETER (μm)	130	90

57/81

FIG. 62B

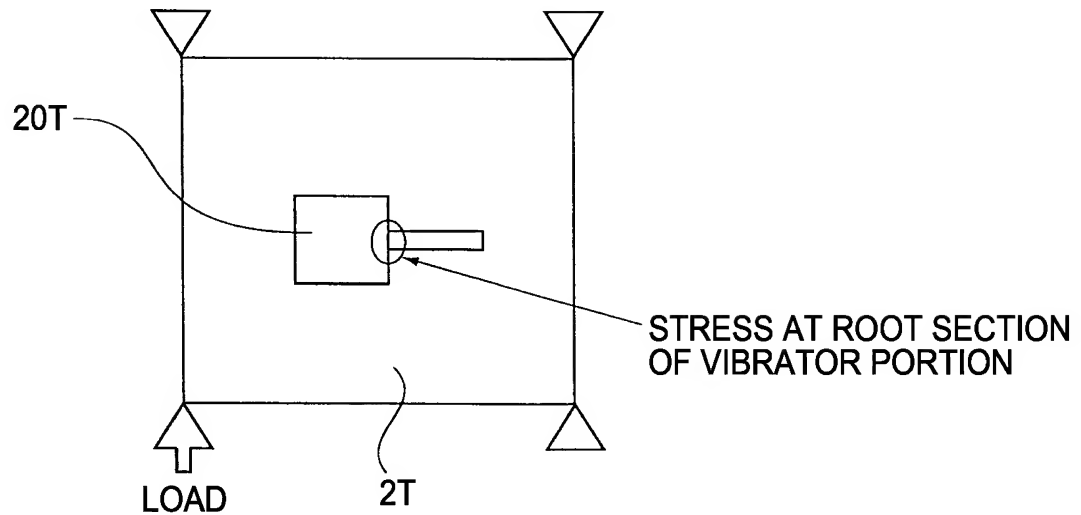


FIG. 63A

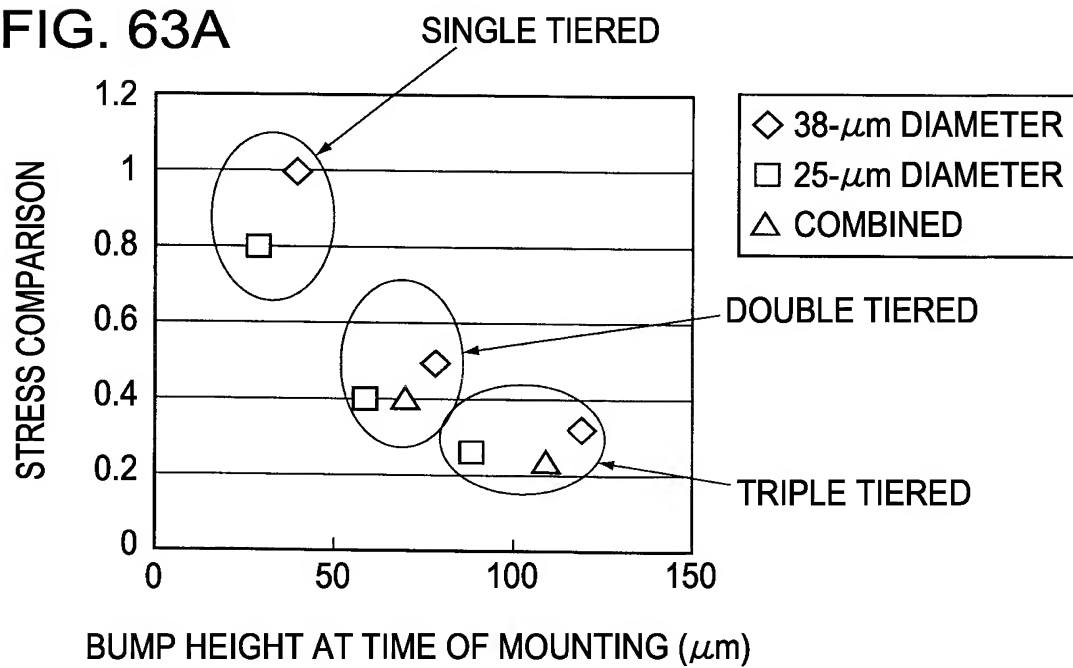


FIG. 63B

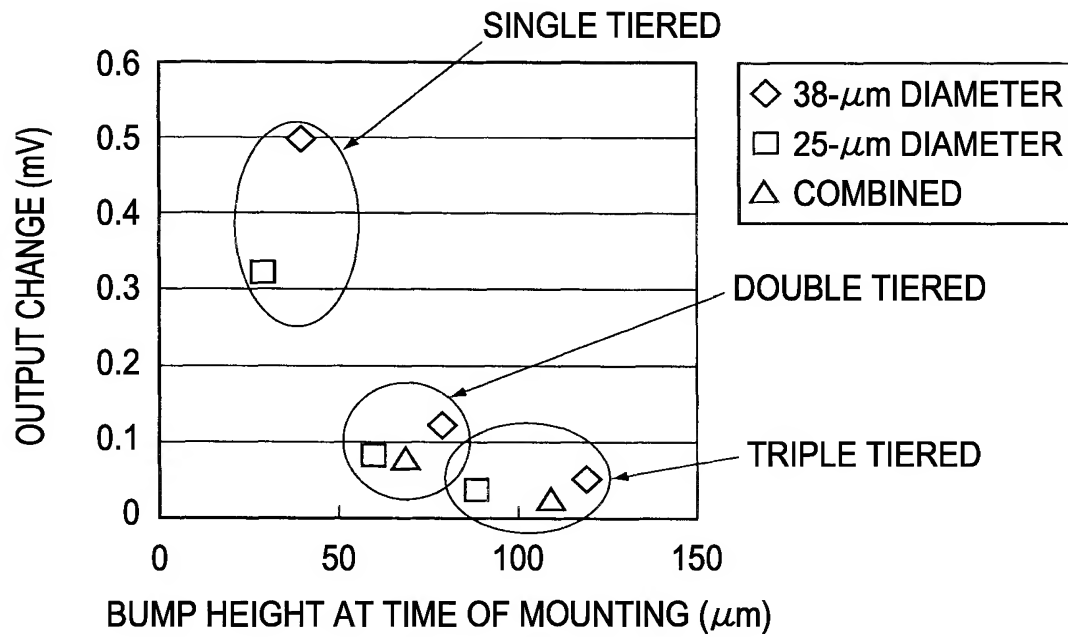


FIG. 64A

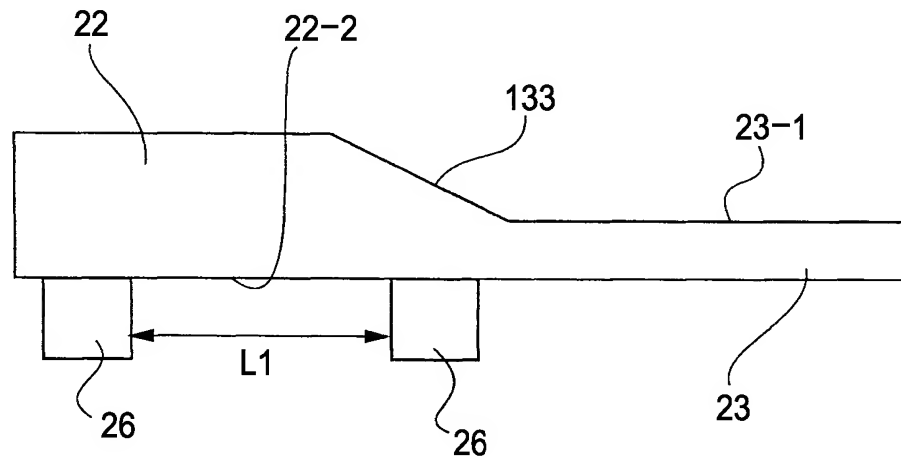


FIG. 64B

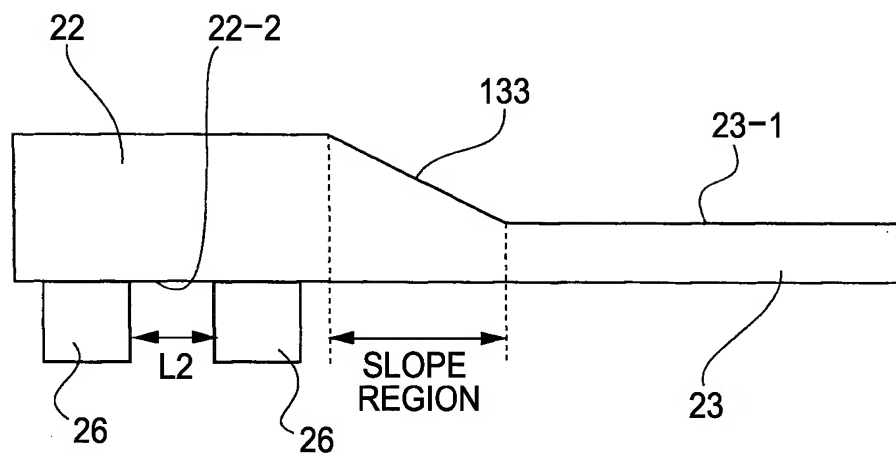


FIG. 65

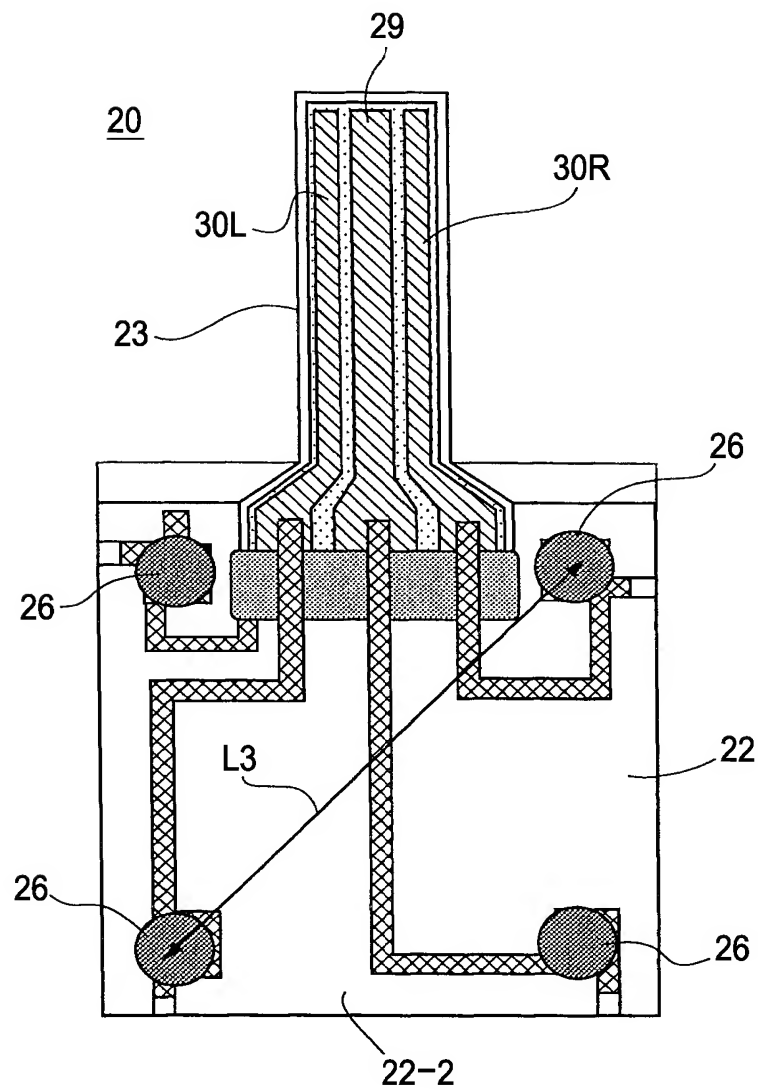


FIG. 66

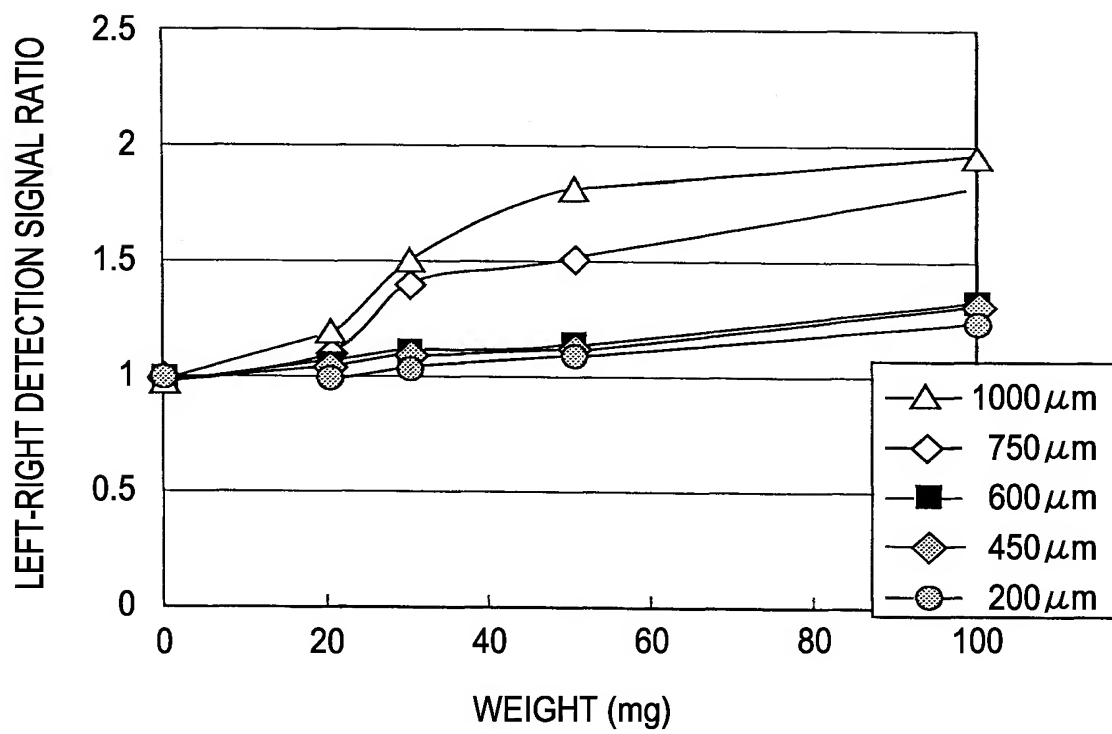


FIG. 67

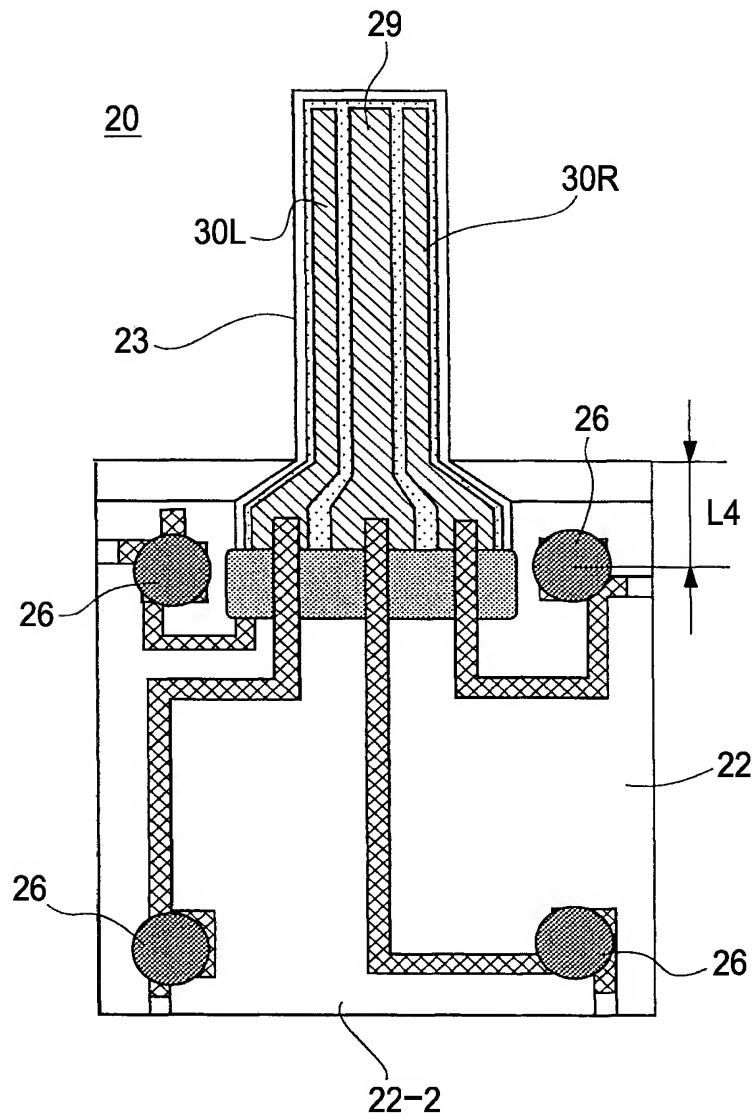


FIG. 68

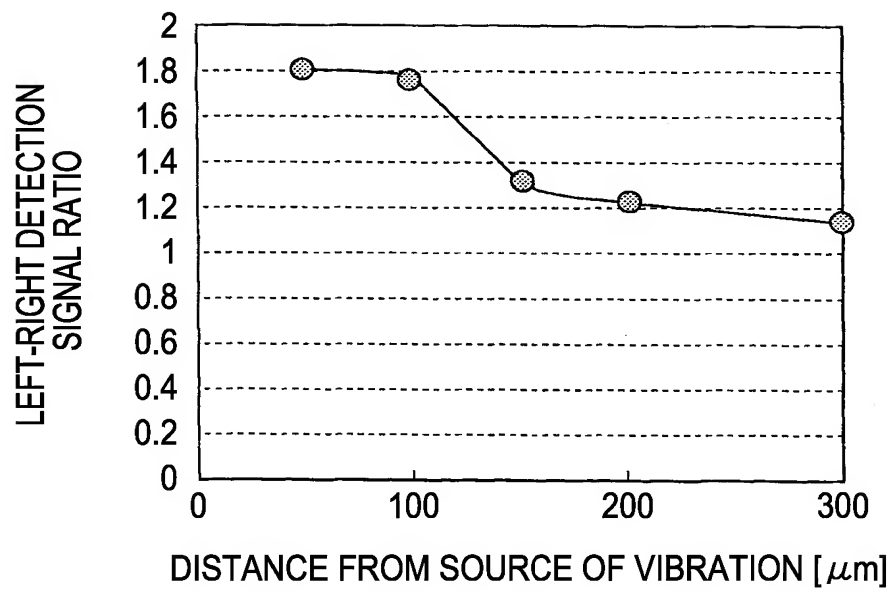


FIG. 69

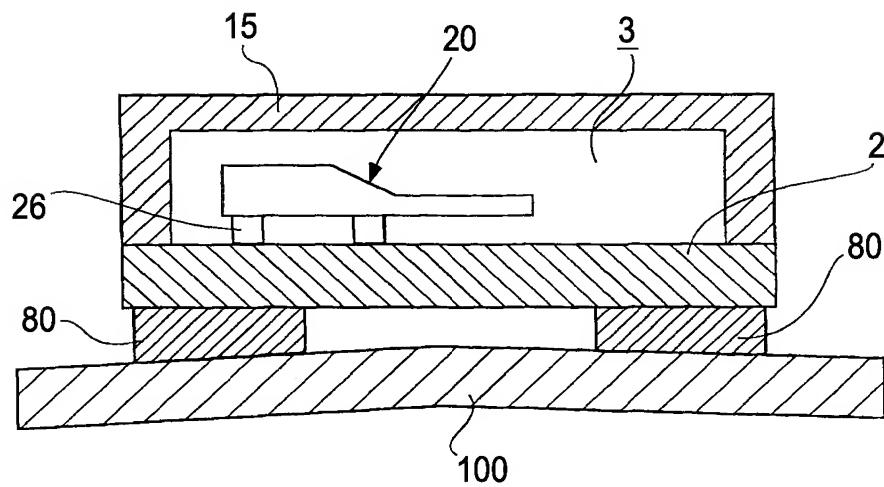


FIG. 70

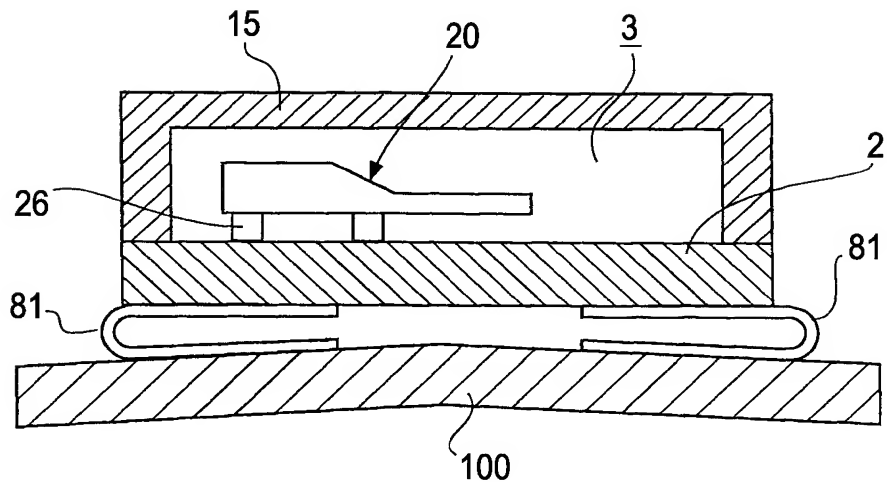


FIG. 71

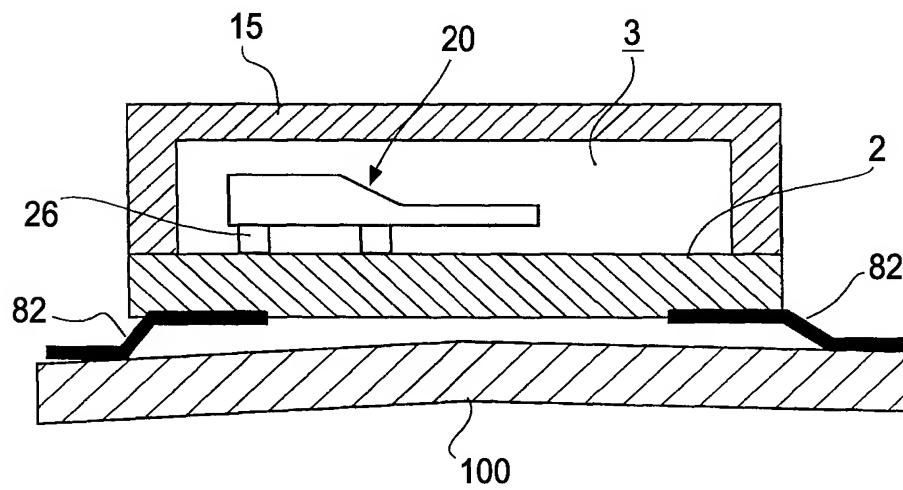


FIG. 72

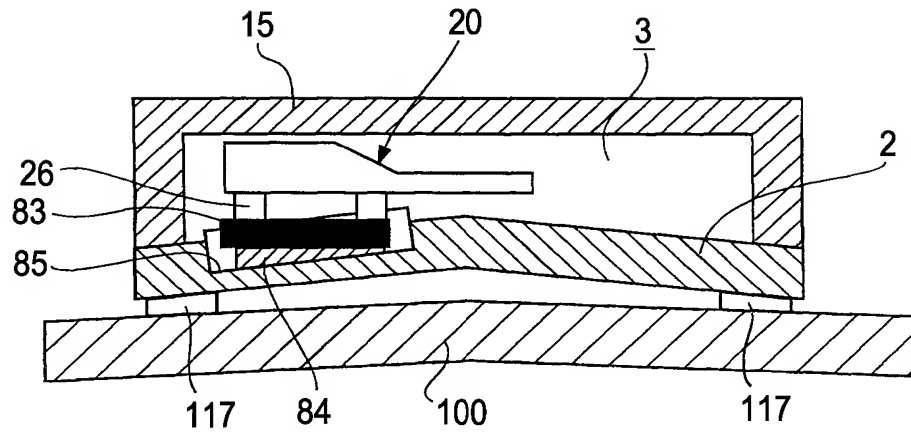
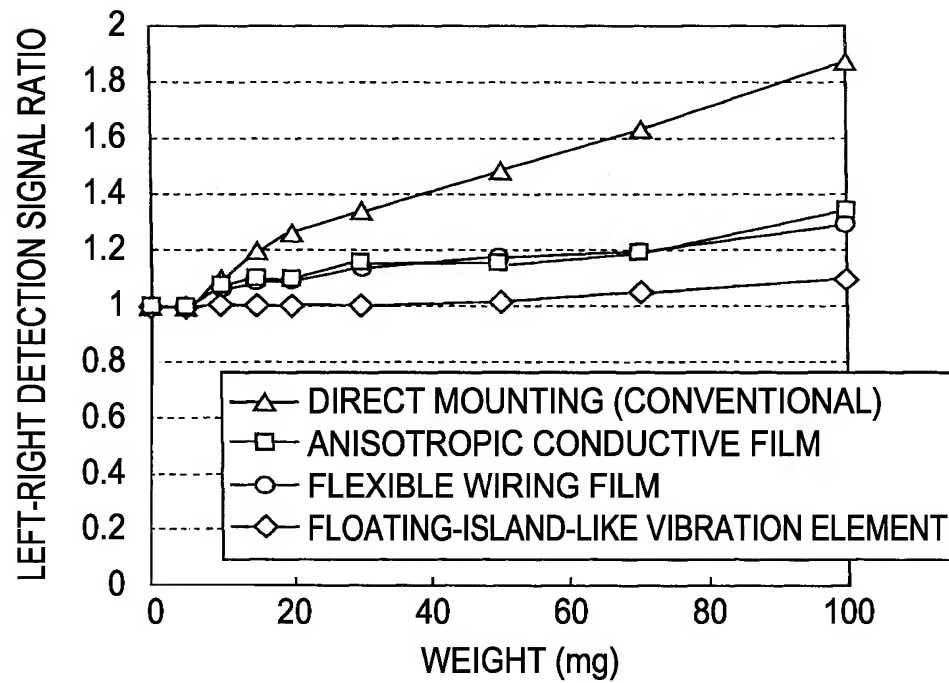


FIG. 73



201

29

30L

30R

23

86

86

26

26

31

31

31

31

26

26

22-2

FIG. 75

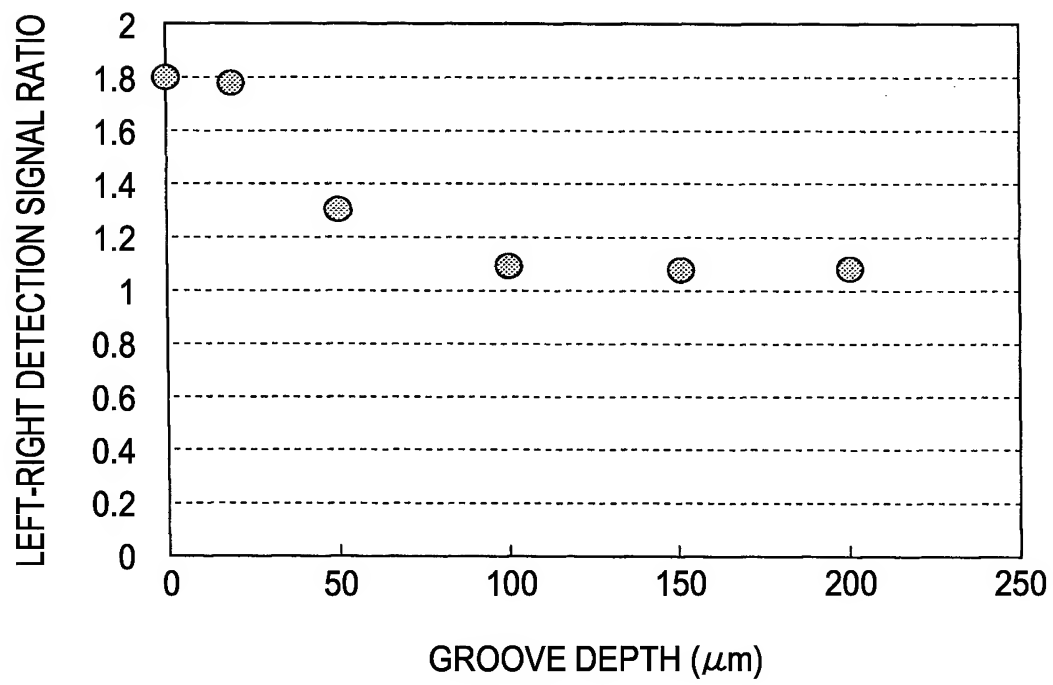


FIG. 76

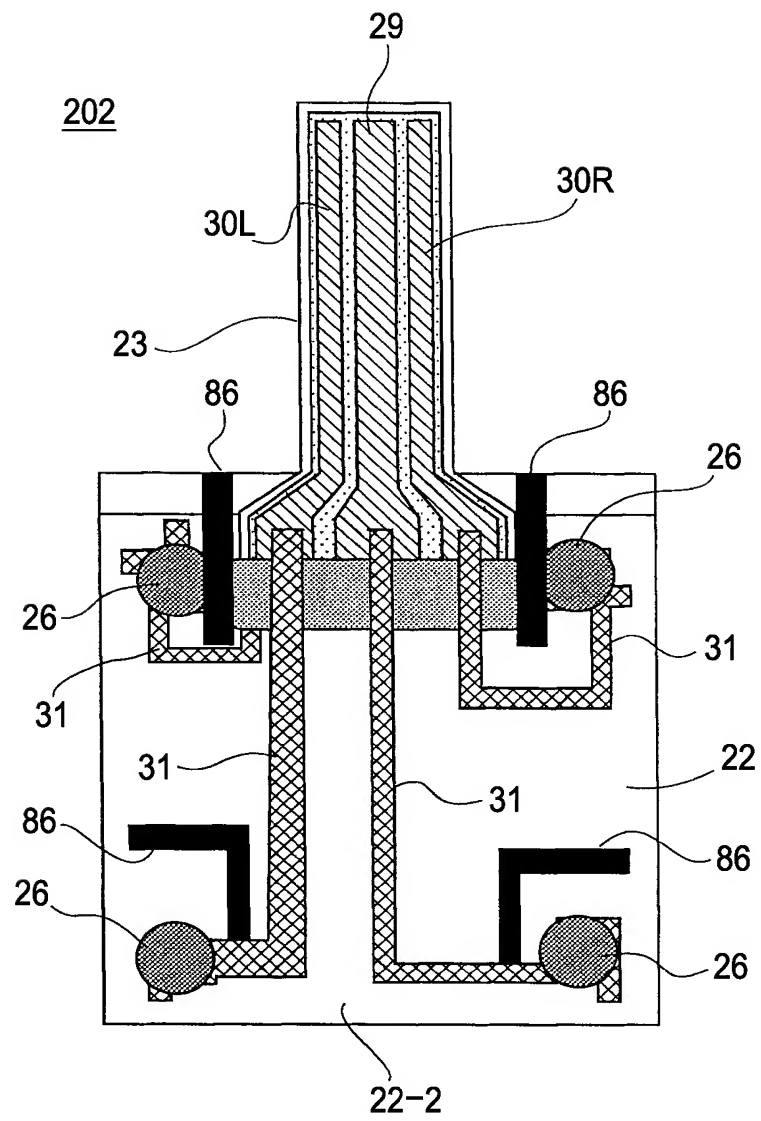


FIG. 77

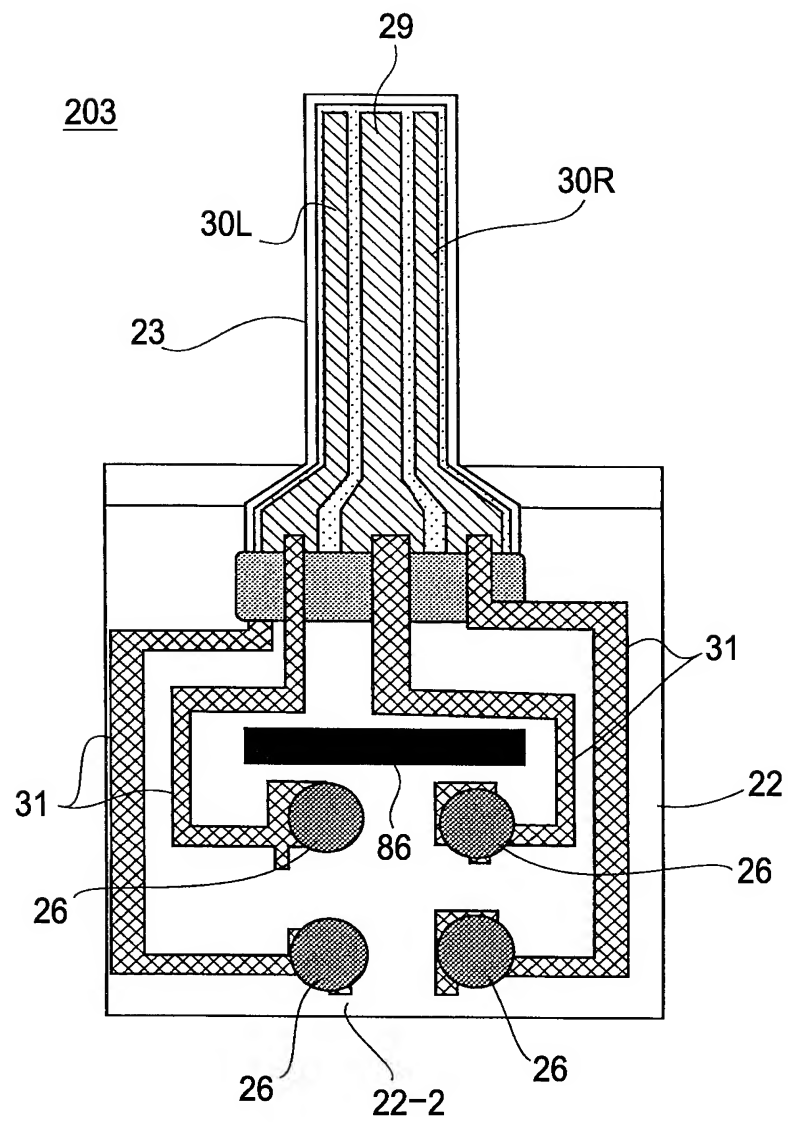


FIG. 78A

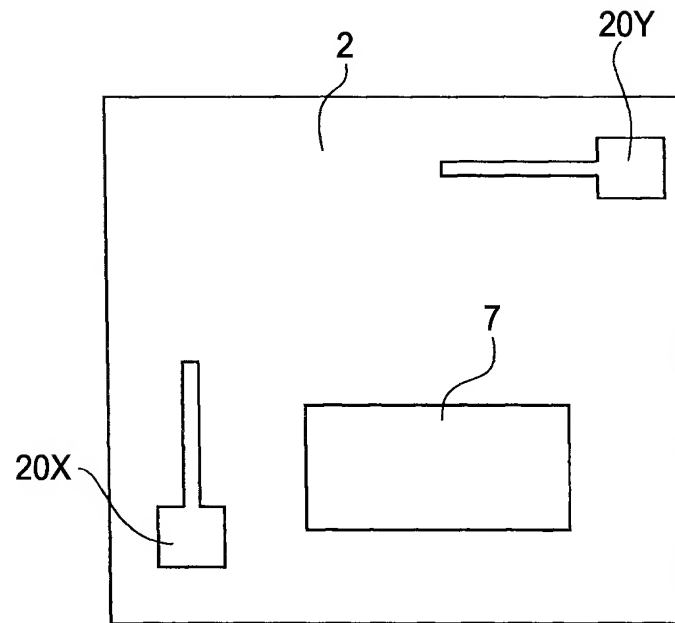


FIG. 78B

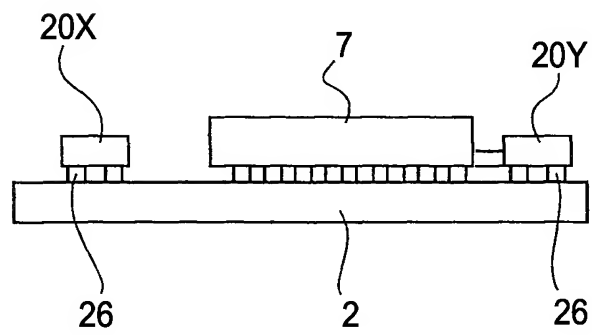


FIG. 79A

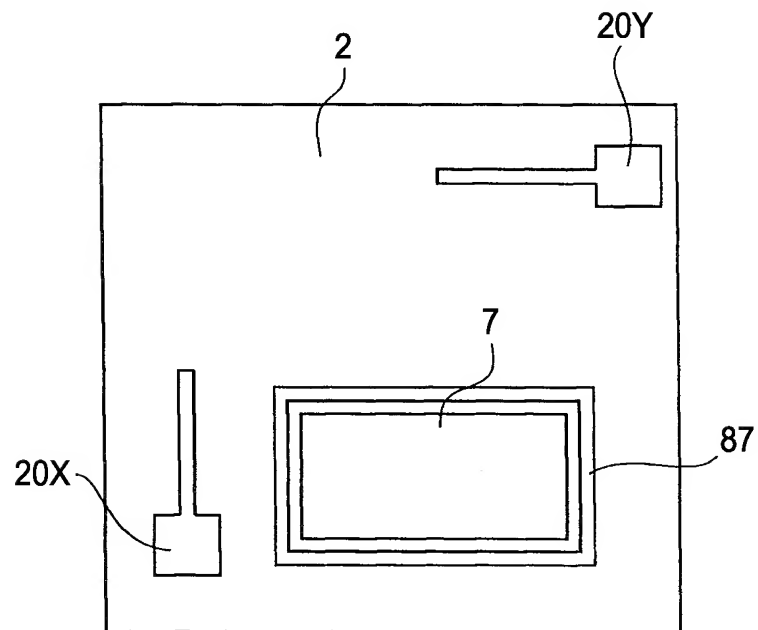


FIG. 79B

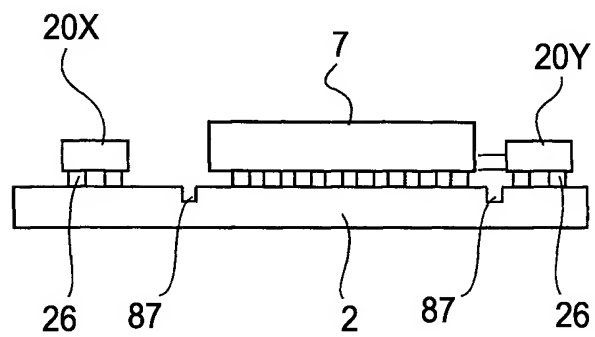


FIG. 80

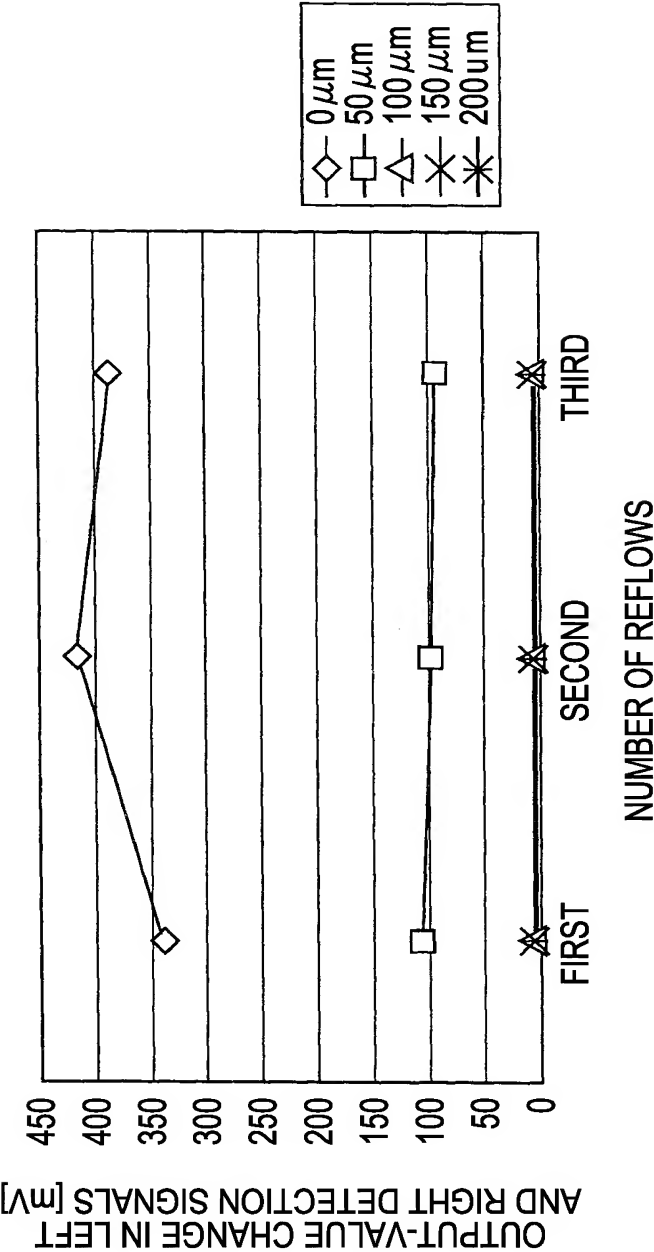


FIG. 81

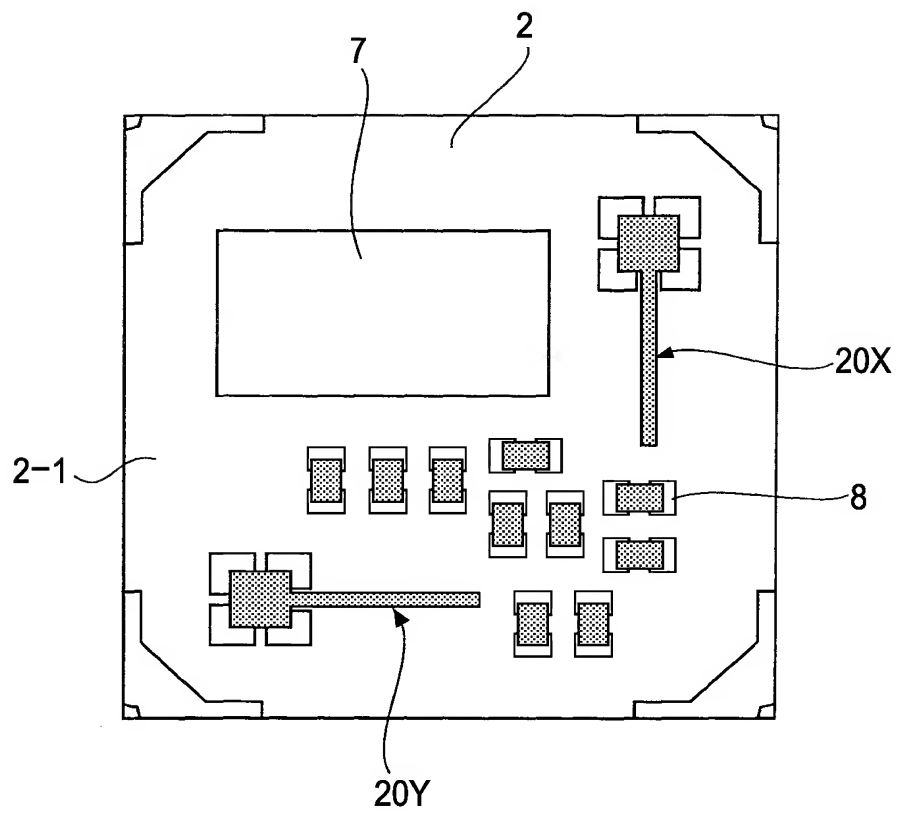


FIG. 82

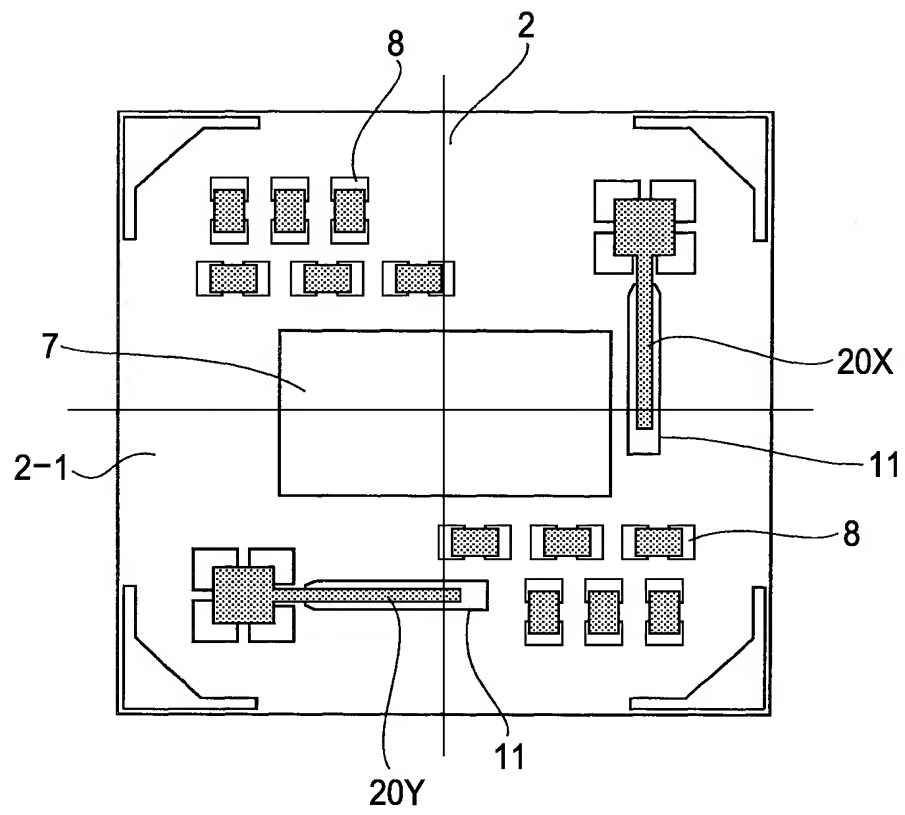


FIG. 83

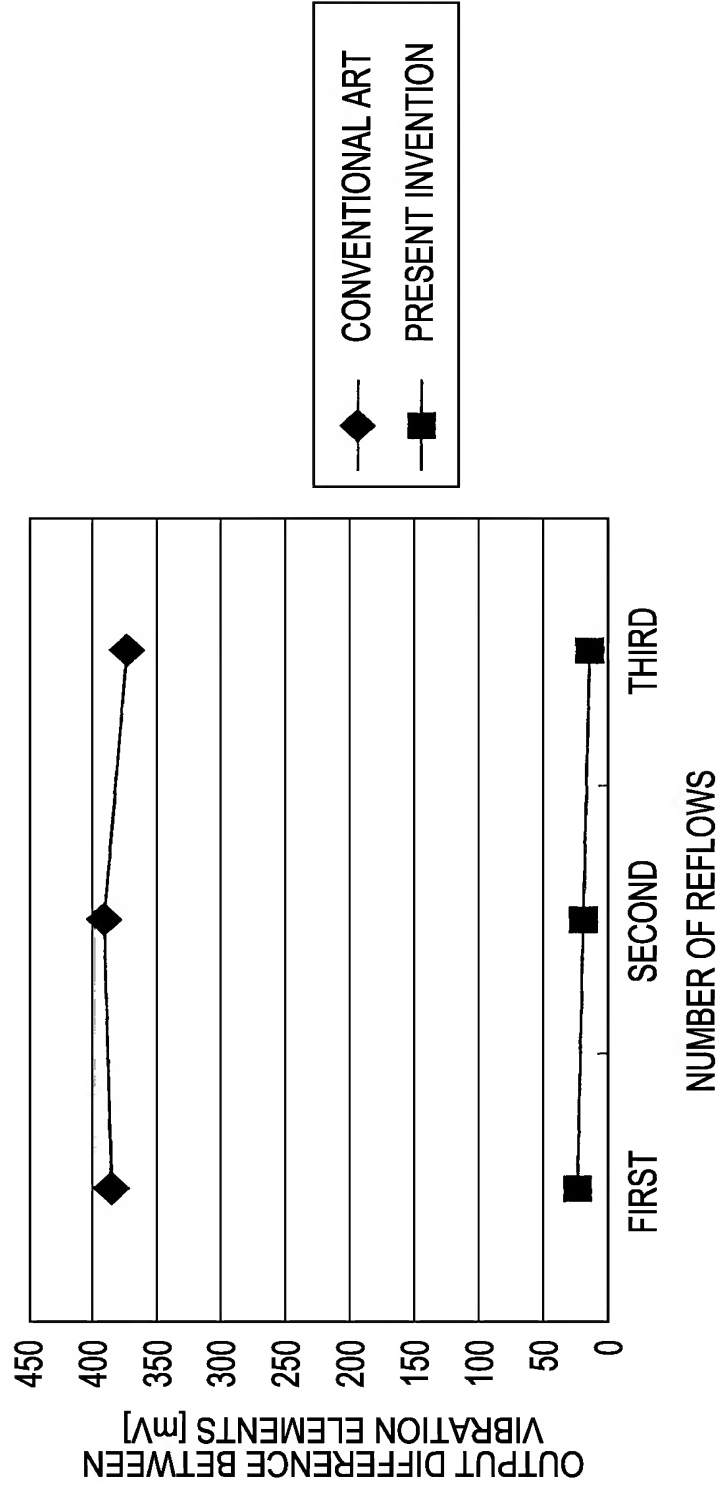


FIG. 84A

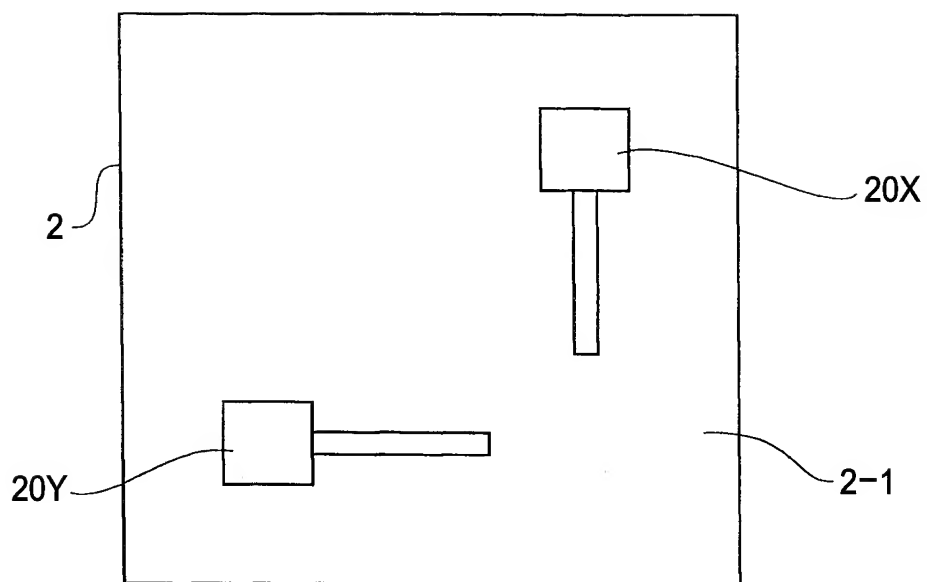


FIG. 84B

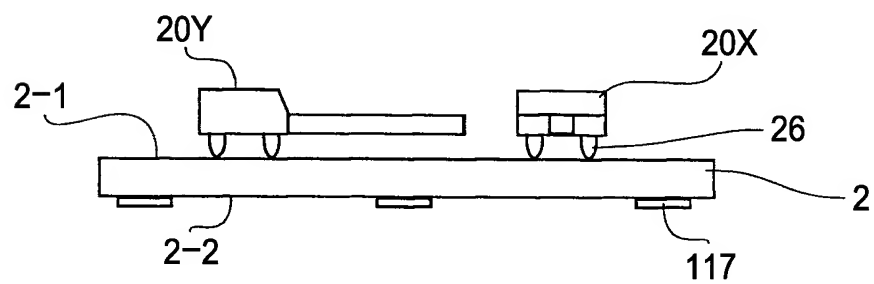


FIG. 84C

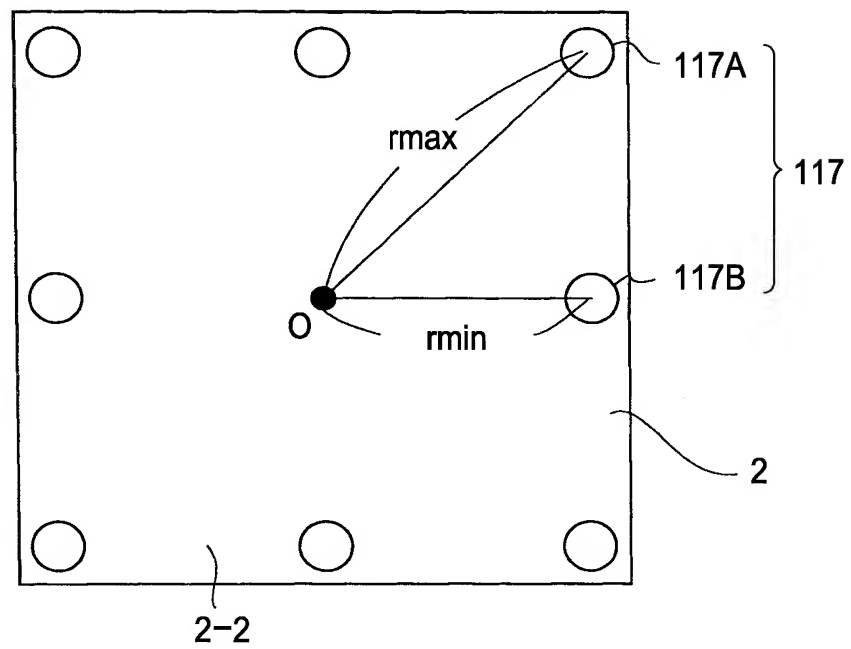


FIG. 85

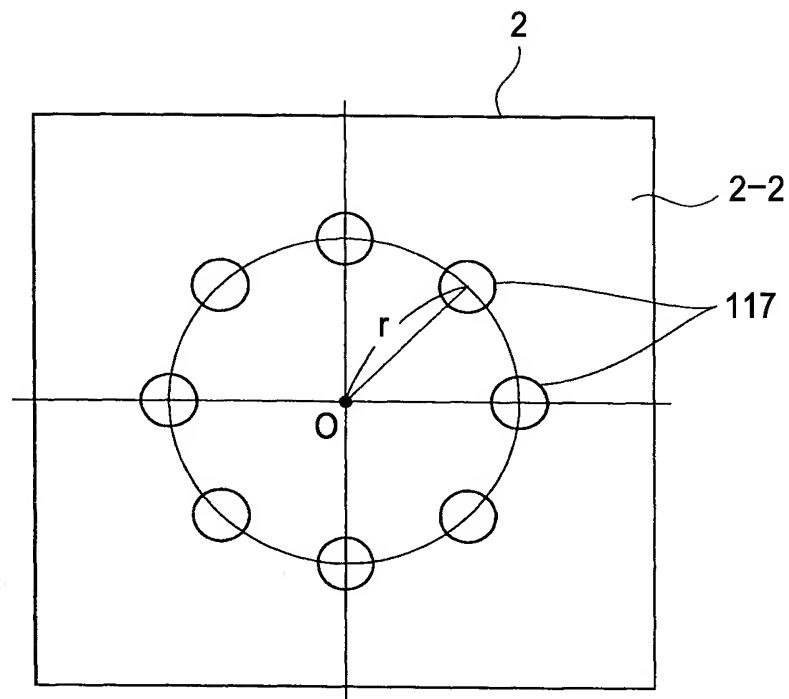


FIG. 86A

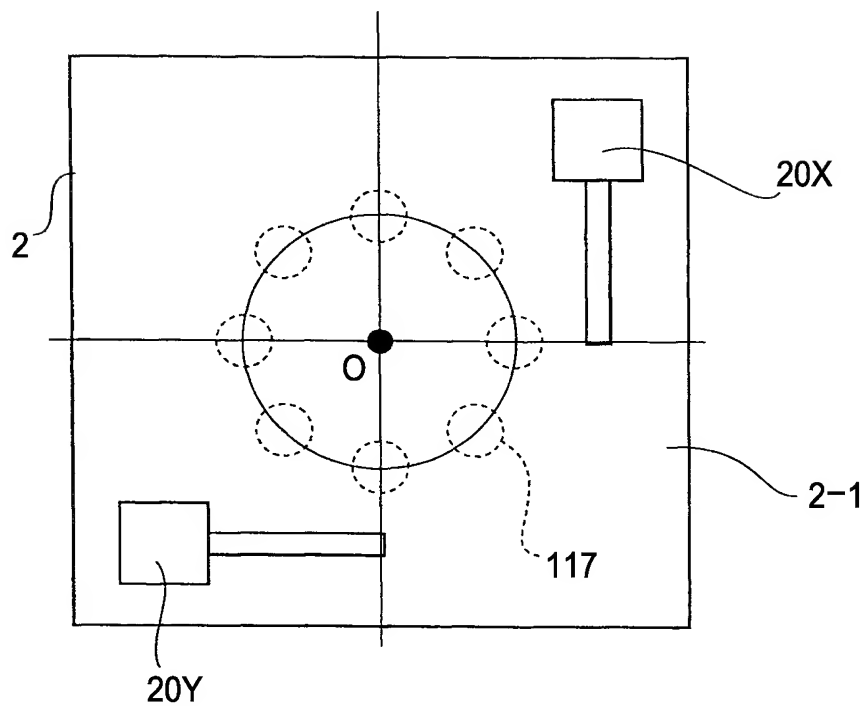


FIG. 86B

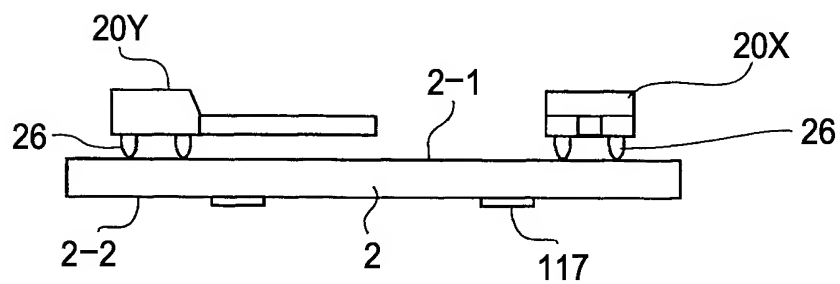


FIG. 87

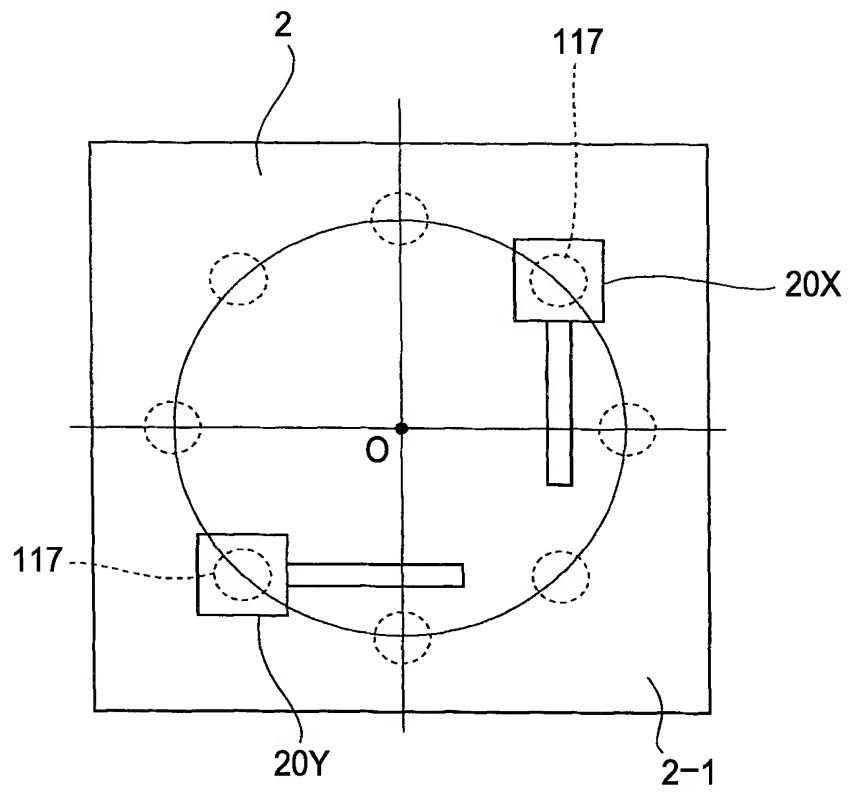


FIG. 88

